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KNCV TB PLUS

JAGORAR MASU RAJIN KARE HAKKIN MARASA LAFIYA KAN GAJERUN TSARE-TSAREN MAGANI

NA CIWON TARIN FUKA DA YA RIGA YA BIJIRE WA MAGUNGUNA

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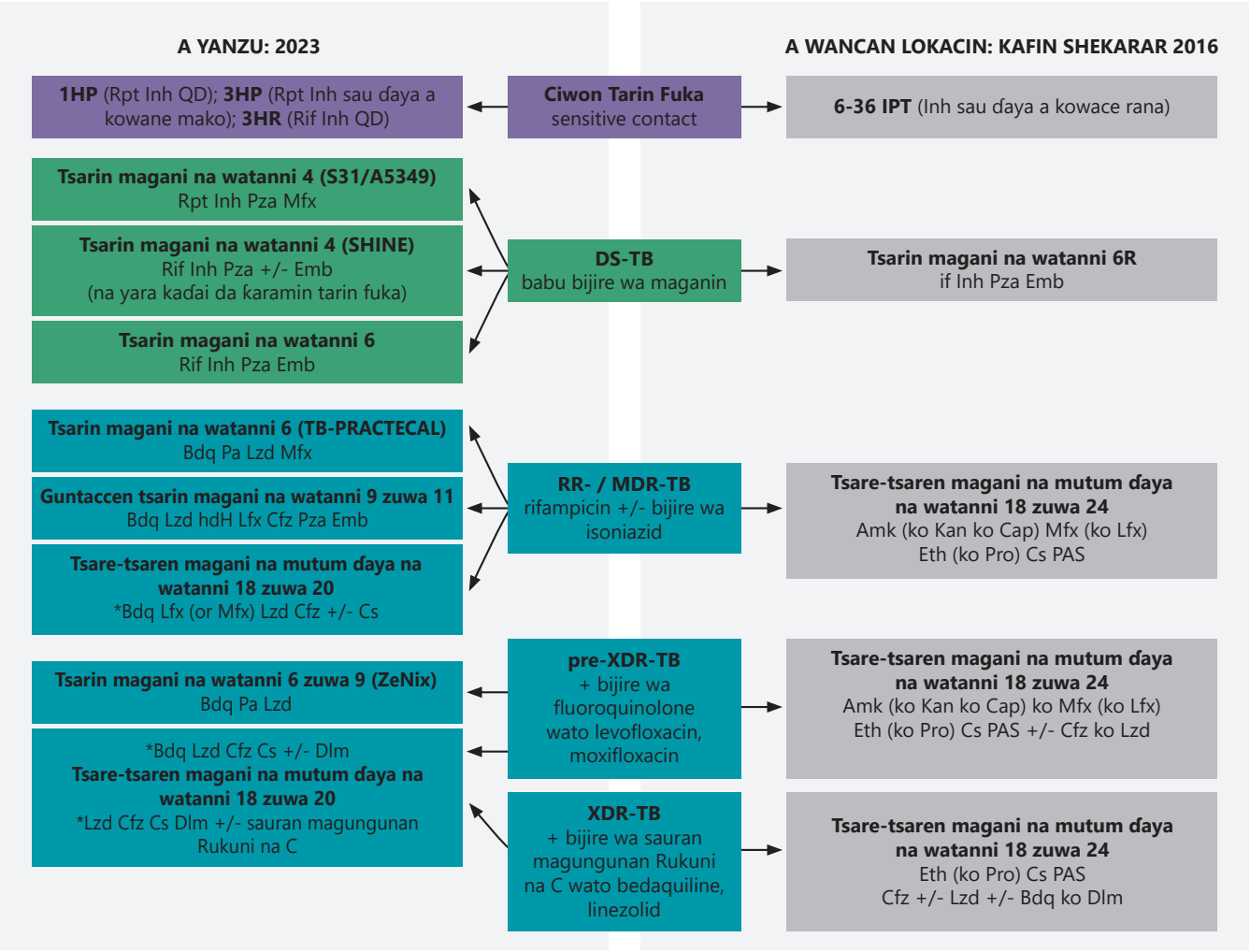
I. TUSHIYA DA GABATARWA

A shekarar 2022, Hukumar Lafiya ta Duniya (WHO) ta sabunta Sashe na 4 na *Haɗaɗɗun Jagororinta kan Maganin Cutar Tarin Fuka* inda ta yi muhimman sauye-sauye ga shawarwarinta game da maganin ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su.[1] Sabbin shawarwarin sun ba da damar rage tsawon lokacin jinya zuwa watanni shida kacal ga masu fama da tarin fuka mai juriyar rifampicin ko kuma mai juriyar magunguna da dama (RR/MDR-TB), ko da kuwa ƙwayar cutar ta ƙara nuna juriyar magungunan fluoroquinolones (pre-XDR-TB) ko kuma ba ta nuna ba. Wannan Jagorar Masu Rajin Kare Haƙkin Marasa Lafiya ta yi nazari kan manyan gwaje-gwajen bincike guda biyu da suka zama tushen sabbin shawarwarin WHO game da tsarin magani na watanni shida. Waɗannan su ne gwaje-gwajen: **TB-PRACTECAL** da **ZeNix**. Sauye-sauyen manufofin da aka samu sakamakon waɗannan bincike sun cika fiye da shekaru ashirin na duƙufa a bincike da aka yi, wanda ya sa a yau ya zama mai yiwuwa a yi wa mafi yawan masu fama da tarin fuka mai saurin amsa magani jinya cikin watanni huɗu, masu fama da tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su kuma cikin watanni shida, yayin da masu ɗauke da ƙwayar cutar ba tare da sun kamu da cutar ba za a iya ba su maganin kariya cikin wata ɗaya zuwa uku kacal.[2]

A shekarar 2016, WHO ta fara fitar da jagororin da suka amince da amfani da daidaitaccen tsarin magani na watanni 9 zuwa 11 wajen kula da masu fama da tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su.[3] Bayan shekaru da dama, tare da samun sabbin hujjojin bincike, WHO ta riƙa sabunta irin magungunan da ke cikin wannan guntaccen tsarin magani. Ta maye gurbin maganin allura da bedaquiline, sannan daga baya ta maye gurbin ethionamide da linezolid, bisa sakamakon amfani da tsarin a shirye-shiryen kula da marasa lafiya a Afirka ta Kudu.[4] A sabon sigar jagororinta, WHO ta kuma amince da amfani da tsarin magani na watanni shida, wanda ya ƙunshi bedaquiline (B), pretomanid (Pa), da linezolid (L), tare da ko ba tare da moxifloxacin (M) ba, gwargwadon ko ƙwayar cutar ta bijirewa magungunan fluoroquinolones (wato, moxifloxacin) ko a'a. Wannan tsarin magani na watanni shida – wanda ake kira BPaL(M) – shi ne tsarin maganin da WHO ta fi ba da shawarar amfani da shi wajen kula da ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su. Idan aka kwatanta da tsarin magani na watanni 9 zuwa 11, tsarin magani na watanni shida yana da ƙarin ingantattun hujjojin kimiyya, ƙaramin gajere ne, yana buƙatar shan ƙananan adadin ƙwayoyin magani, sannan kuma yana haifar da ƙarancin illa ga jiki. Duk da haka, akwai babban giɓin ilimi da ke hana wasu rukunin mutane cin gajiyar waɗannan ci gaban da aka samu a fannin magani, aƙalla a halin yanzu.

Domin samun ƙarin bayani game da tsarin magani na gajeren lokaci da WHO ta ba da shawarar amfani da su wajen kula da ciwon tarin fuka mai saurin jin magani da kuma rigakafin cutar tarin fuka, duba littattafan *AJagorar Masu Rajin Kare Haƙkin Marasa Lafiya kan Tsarin Magani na Gajeren Lokaci na Ciwon Tarin Fuka Mai Saurin Jin Magani* da kuma *AJagorar Masu Rajin Kare Haƙkin Marasa Lafiya kan Amfani da Rifapentine wajen Maganin Kwayar Cutar Tarin Fuka*.

HOTO NA 1. TSARE-TSAREN MAGANIN TARIN FUKA: A DA DA KUMA YANZU



*misalan tsare-tsaren magani na mutum ɗaya da suka ƙunshi magunguna guda 4 zuwa 5, waɗanda aka zaɓa bisa ga jadawalin magungunan da WHO ta ba su fifiko. Irin magungunan da za a haɗa a tsarin maganin zai bambanta gwargwadon irin juriyar ƙwayar cutar ga magunguna da mutum yake da ita, da kuma wasu dalilai.

YADDA ZA A YI AMFANI DA WANNAN JAGORA

Mun rubuta wannan jagora ne domin samar wa masu rajin kare haƙkin marasa lafiya da bayanai game da gajerun tsare-tsaren maganin ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su, ciki har da sakamakon sabbin gwaje-gwajen bincike, muhimman abubuwan da ya kamata a yi la'akari da su ga wasu rukunin mutane na musamman, da kuma matsalolin da ake sa ran za su iya hana samun maganin. Haka kuma, wannan jagora ya tanadi matakan da masu rajin kare haƙkin marasa lafiya za su iya ɗauka, tare da hujjojin da za su iya amfani da su wajen fafutukar tabbatar da samun gajerun tsare-tsaren maganin.

A cikin wannan jagora, an taƙaita sunayen tsare-tsaren magani ta yadda lambobi ke nuna tsawon lokacin jinya da watanni, haruffa kuma ke wakiltar sunayen magungunan da suka haɗa tsarin maganin, yayin da aka yi amfani da alamar karkata wajen raba matakin farko na jinya da matakin ci gaba da jinya. Misali, **6BPaLM** na nufin shan bedaquiline, pretomanid, linezolid, da moxifloxacin na tsawon watanni shida. Jadawalin taƙaitattun bayanai da ke ƙasa ya ƙunshi gajartattun sunayen magungunan tarin fuka da aka fi amfani da su.

JADAWALIN TAKAITATTUN BAYANAI NA GAJARTATTUN SUNAYEN MAGUNGUNAN TARIN FUKA

amikacin	Am	**linezolid**	Lzd, Lz
bedaquiline	J, Bdq	**meropenem**	Mpm
clofazimine	C, Cfz	**moxifloxacin**	M, Mfx, Mx
cycloserine	Cs	**p-aminosalicylic acid**	PAS
delamanid	D, Dlm	**pretomanid**	Pa
ethambutol	E, Emb	**prothionamide**	Pto
ethionamide	Eto	**pyrazinamide**	Z, Pza
babban kashi	Hd	**rifampicin**	R, Rif
imipenem-cilastatin	Imp-Cln	**rifapentine**	P, Rpt
isoniazid	H, Inh	**streptomycin**	S
levofloxacin	L, Lfx, Lx	**terizidone**	Trd, Tzd

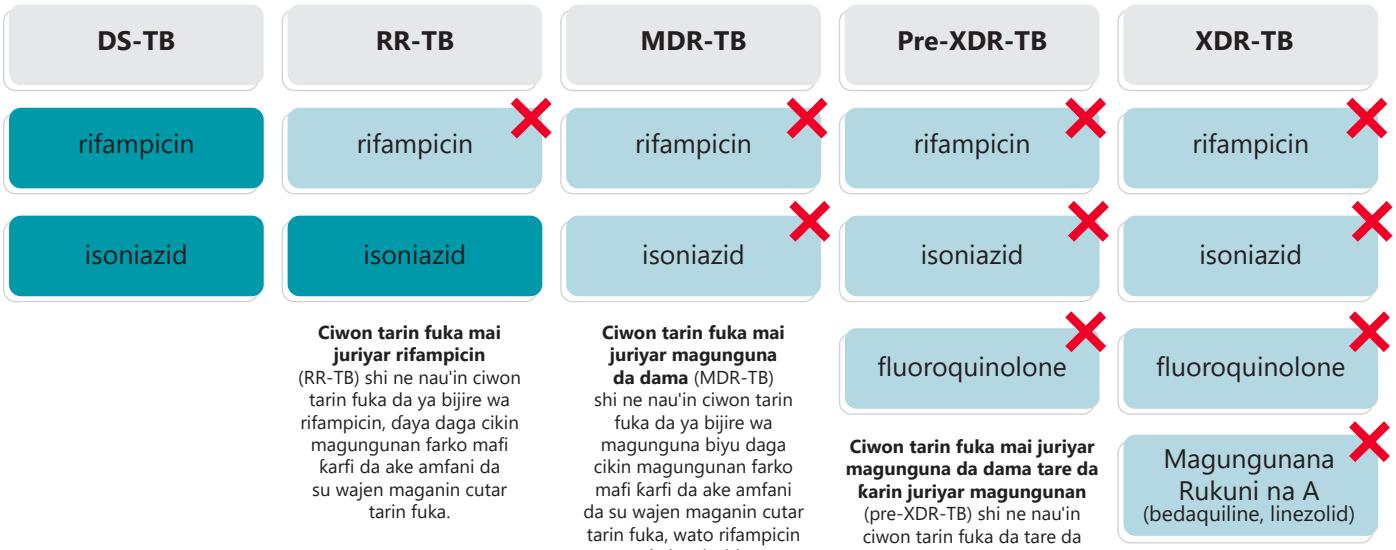
MA'ANAR CIWON TARIN FUKA DA YA RIGA YA BIJIRE WA MAGUNGUNAN DA AKA SABA AMFANI DA SU

Kowane maganin da ake amfani da shi wajen magance cutar tarin fuka yana da **yadda yake aiki** wajen raunana ko kashe ƙwayoyin cutar tarin fuka. Wasu sauye-sauye da kan faru a cikin ƙwayar cutar na iya hana magani yin aikin da aka ƙera shi domin yi. Hakan na iya faruwa ta hanyar hana maganin aiki, ko kuma hana shi shiga ko ci gaba da kasancewa a cikin ƙwayar cutar tarin fuka. Sauye-sauyen ƙwayar cutar da ke sa ta bijire wa magunguna na iya faruwa ta ɗabi'a, ko kuma su taso a hankali sakamakon rashin shan magani yadda ya kamata ko kuma shan magani ba bisa ƙa'ida ba. Ana iya ɗaukar ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su daga mutum zuwa mutum, wanda ake da juriyar da aka ɗauko ta hanyar kamuwa da cutar, haka kuma, wannan juriyar na iya tasowa sakamakon rashin samun ingantaccen magani saboda ƙarancin adadin magani, rashin yadda jiki ke tsotsar magani, ko kuma katsewa ko rashin kammala shan maganin tarin fuka, wanda ake kira juriyar da aka samu bayan fara magani.

An ƙiyasta cewa kusan mutane 500,000 ne ke kamuwa da ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su a kowace shekara, sai dai, kashi 30 cikin ɗari ne kawai daga cikinsu ake gano suna ɗauke da cutar tare da fara ba su magani. A duniya baki ɗaya, daga cikin mutanen da aka gano suna ɗauke da wannan cuta kuma aka fara ba su magani, tsakanin kashi 60 zuwa 70 cikin ɗari ne kawai ke samun nasarar warkewa.[5] Ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su yana da nau'o'i daban-daban. Nau'o'in ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su ana rarrabe su ne bisa ga irin magungunan da ƙwayar cutar tarin fuka ta bijire musu.

YADDA MAGANI KE AIKI shi ne hanyar ko hanyoyin da maganin tarin fuka ke raunana ko kashe ƙwayar cutar tarin fuka. Misali, ta hanyar hana ƙwayar cutar samar da makamashi (bedaquiline) ko kuma hana ta girma ta hanyar dakatar da ginin bangon ƙwayar cutar.

HOTO NA 2. MA'ANAR CIWON TARIN FUKA DA YA RIGA YA BIJIRE WA MAGUNGUNAN DA AKA SABA AMFANI DA SU



Ciwon tarin fuka mai juriyar rifampicin (RR-TB) shi ne nau'in ciwon tarin fuka da ya bijire wa rifampicin, ɗaya daga cikin magungunan farko mafi ƙarfi da ake amfani da su wajen maganin cutar tarin fuka.

Ciwon tarin fuka mai juriyar magunguna da dama (MDR-TB) shi ne nau'in ciwon tarin fuka da ya bijire wa magunguna biyu daga cikin magungunan farko mafi ƙarfi da ake amfani da su wajen maganin cutar tarin fuka, wato rifampicin da isoniazid.

Ciwon tarin fuka mai juriyar magunguna da dama tare da ƙarin juriyar magungunan (pre-XDR-TB) shi ne nau'in ciwon tarin fuka da tare da ƙarin juriyar magungunan fluoroquinolones, (wato moxifloxacin, levofloxacin).

Ciwon tarin fuka mai tsananin juriyar magunguna (XDR-TB) shi ne nau'in ciwon tarin fuka da ya bijire wa rifampicin da isoniazid, tare da ƙarin juriyar magungunan fluoroquinolones, da kuma akalla magani ɗaya daga cikin Magungunan Rukuni na A, (wato bedaquiline ko linezolid).

II. INGANCI DA AMINCIN TSARE-TSAREN MAGANI NA WATANNI SHIDA DOMIN MAGANIN CIWON TARIN FUKA DA YA RIGA YA BIJIRE WA MAGUNGUNAN DA AKA SABA AMFANI DA SU

TB-PRACTECAL (NCT02589782)

Manufar gwajin TB-PRACTECAL ita ce tantance aminci da ingancin tsare-tsaren magani guda uku na watanni shida waɗanda suka dogara da bedaquiline, pretomanid, da linezolid wajen maganin manya da matasa masu fama da ciwon tarin fuka mai juriyar rifampicin ko mai juriyar magunguna da dama, RR-/MDR-TB. Tsare-tsaren magani guda uku da aka gwada sun haɗa da: 1. BPaL, 2. BPaL tare da ƙarin clofazimine (BPaLC), da kuma 3. BPaL tare da ƙarin moxifloxacin (BPaLM). An kwatanta kowane ɗaya daga cikin waɗannan rassa uku na gwajin da rukunin kwatance (control arm), wanda ya ƙunshi mahalarta da suka karɓi tsarin magani na watanni 9 zuwa 11 ko na watanni 18 zuwa 20, wanda shi ne tsarin magani na yau da kullum da WHO ta ba da shawarar amfani da shi. An shigar da mahalarta gwajin TB-PRACTECAL guda 552 daga cibiyoyi bakwai da ke ƙasashe uku: wato Belarus, Afirka ta Kudu, da Uzbekistan. Mahalarta gwajin sun fito daga rukunin mutane daban-daban masu fama da cutar tarin fuka. Sun haɗa da matasa masu shekaru 15 zuwa sama (kashi 4 cikin 100), mutanen da ke rayuwa da ƙwayar cutar HIV ba tare da la'akari da adadin ƙwayoyin CD4 da suke da su ba (kashi 27.6 cikin 100), da kuma mutanen da **cutar tarin fuka ta haifar musu da ramuka a cikin huhu** (kashi 60.7 cikin 100).

An gudanar da binciken ne a matakai biyu. Dukkan tsare-tsaren magani guda uku da aka gwada sun nuna sakamako mai kyau a mataki na farko, sai dai, ɗaya ne kawai daga cikinsu, wato BPaLM, aka ci gaba da gwada shi a mataki na biyu. An tabbatar cewa tsarin magani na watanni shida na BPaLM **bai gaza** tsarin magani na yau da kullum mai tsawon lokaci ba (wato, bai fi shi muni ba) kuma **ya mafi shi inganci** (wato, fi shi kyau). Sakamakon magani marar gamsarwa (wato, haɗaɗɗen ma'auni da ya ƙunshi mutuwa, gazawar magani, dakatar da magani, misali, sauya magunguna biyu ko fiye, ɓacewa daga kulawar jinya, ko kuma sake kamuwa da cutar tarin fuka) da aka lura da su a cikin mutanen da aka raba ta hanyar bazata domin su karɓi tsarin magani na watanni shida na BPaLM sun kasance ƙalilan sosai (16 cikin 138, wato kashi 11.7 cikin 100) idan aka kwatanta da waɗanda aka lura da su a cikin mutanen da aka raba ta hanyar bazata domin su karɓi tsare-tsaren magani na yau da kullum masu tsawon lokaci (56 cikin 137, wato kashi 40.9 cikin 100).[6] Bambancin da aka samu a sakamakon magani marar gamsarwa ya samo asali ne musamman daga yawan dakatar da

CUTAR TARIN FUKA MAI HAIFAR DA RAMUKA A CIKIN HUHU alama ce da ke nuna tsananin cutar tarin fuka — mutanen da huhunsu ya fi lalacewa (wato, masu ramukan da ake gani ta hoton X-ray na kirji) galibi suna da cutar tarin fuka mai tsanani.

NON-INFERIOR na nufin cewa sabon tsarin magani bai gaza tsarin kwatance ba fiye da iyakar bambancin da aka riga aka kayyade (wanda ake kira non-inferiority margin).

SUPERIOR na nufin cewa sabon tsarin magani ya fi tsarin kwatance inganci da adadin bambancin da aka riga aka kayyade.

magani tun da wuri da aka samu a rukunin kwatance, galibi saboda **illolin magani**.[7] An kuma tabbatar da cewa tsarin magani na watanni shida na BPaLM ya fi tsare-tsaren magani na yau da kullum masu tsawon lokaci aminci, domin kashi 23 cikin 100 na mahalartan da suka karɓi BPaLM ne kawai suka fuskanci aƙalla mummunar illa ɗaya ta magani ko illa ta mataki na uku ko sama da haka, idan aka kwatanta da kashi 48 cikin 100 na mahalartan da suka karɓi tsare-tsaren magani na yau da kullum masu tsawon lokaci. Bisa waɗannan sakamakon, Hukumar Kula da Bayanai da Tsaron Mahalarta Gwaji (DSMB) ta yanke shawarar dakatar da binciken kafin a kammala shigar da dukkan mahalartan da aka tsara. Wannan na iya rage damar cikakken tantance yadda tsarin maganin ke aiki a cikin wasu takamaiman rukunin mutane da kuma dangane da wasu ma'aunan sakamakon binciken, kamar mutuwa da gazawar magani, saboda an shigar da mahalarta ƙasa da adadin da aka tsara tun farko.

Wani **ILLA TA MAGANI** ita ce duk wata alama ko matsalar lafiya da ba a yi niyyar ta faru ba kuma ba ta da amfani ga mara lafiya, wadda ta bayyana yayin amfani da wani magani ko tsarin magani. A binciken gwaje-gwajen asibiti, ana yawan rarraba illolin magani zuwa matakai bisa ga ma'aunai da aka amince da su. Yawanci, ma'aunin yana farawa daga mataki na 1 zuwa na 5, inda mataki na 1 ke nuna illa mai sauƙi, yayin da mataki na 5 ke nufin mutuwa.

ZeNix (NCT03086486)

Manufar gwajin ZeNix ita ce inganta aminci da jurewar tsarin magani na watanni shida na BPaL ta hanyar amfani da ƙwayoyi da tsawon lokacin shan linezolid daban-daban a wajen manya da matasa masu fama da ciwon tarin fuka mai juriyar magunguna da dama tare da ƙarin juriyar magungunan fluoroquinolones. Gwajin ZeNix ya ginu ne a kan wani binciken gwaji mai rukunin mahalarta guda ɗaya da ake kira Nix-TB (NCT02333799) wanda shi ne ya fara tabbatar da ingancin tsarin magani na watanni shida na BPaL wajen maganin nau'o'in cutar tarin fuka masu tsananin juriyar magunguna. A wannan binciken, an samu nasarar magani a tsakanin kashi 90 cikin 100 na mahalarta binciken (98 cikin 109).[8] A gwajin Nix-TB, an ba mahalarta linezolid a ƙwayar 1,200 mg a kowace rana na tsawon watanni shida na magani. Sai dai, mahalarta 37 ne kawai (kashi 34 cikin 100) suka kammala watanni shida na shan linezolid ba tare da katsewa ba, yayin da mahalarta 16 ne kawai (kashi 15 cikin 100) suka kammala watanni shida na shan linezolid ba tare da katsewa ba a jimillar adadin miligiram 1,200 a kowace rana. Jimillar mahalarta 62 (kashi 57 cikin 100) sun fuskanci illolin magani na mataki na uku ko sama da haka yayin shan magani. **Lalacewar jijiyoyin gaɓoɓi** ta faru a mahalarta 88 (kashi 81 cikin 100), yayin da **raguwar samar da ƙwayoyin jini a bargon ƙashi** ta faru a mahalarta 52 (kashi 48 cikin 100).

Domin ƙara inganta aminci da jurewar tsarin magani na BPaL, gwajin ZeNix ya tantance tsarin maganin ta hanyar amfani da hanyoyi huɗu daban-daban na ƙwaya (miligiram 1,200 ko miligiram 600 a kowace rana) da tsawon lokacin shan linezolid (watanni biyu ko watanni shida). An shigar da mahalarta gwajin ZeNix guda 181 daga cibiyoyi 11 da ke ƙasashe huɗu: wato Afirka ta Kudu, Georgia, Moldova, da Rasha. Rukunin mahalarta binciken ya haɗa da manya da matasa masu shekaru 14 zuwa sama, da kuma mutanen da ke rayuwa da ƙwayar cutar HIV waɗanda ke da adadin ƙwayoyin CD4 na aƙalla 100 a kowace mm3 (kashi 20 cikin 100). Tsarin magani na BPaL tare da linezolid a ƙwayar miligiram 600 a kowace rana na tsawon watanni shida ya nuna mafi kyawun daidaito tsakanin aminci da inganci (wato, mafi kyawun daidaito tsakanin amfanin magani da haɗurran da ka iya tattare da shi) inda mahalarta 40 cikin 45 (kashi 89 cikin 100) aka tantance cewa sun samu sakamakon magani mai gamsarwa, yayin da mahalarta 6 cikin 45 (kashi 13 cikin 100) suka buƙaci a sauya ƙwayar linezolid da suke sha.[9] Daga cikin mahalartan da aka raba ta hanyar bazata domin su karɓi tsarin magani na BPaL tare da linezolid a ƙwayar miligiram 600 a kowace rana na tsawon watanni shida, an samu lalacewar jijiyoyin gaɓoɓi ta mataki na 3 ko ƙasa da haka a mahalarta 11 cikin 45 (kashi 24 cikin 100), yayin da aka samu raguwar samar da ƙwayoyin jini a ɓargon ƙashi a mahalarta 1 cikin 45 (kashi 2 cikin 100). Ba kamar gwajin TB-PRACTECAL ba, tsarin gwajin ZeNix bai haɗa da **rukunin kwatance** da ya ɗauki tsarin magani na yau da kullum ba. Wannan ya takaita yiwuwar yin kwatancen sakamakon gwajin ZeNix kai tsaye da sauran tsare-tsaren magani na watanni 9 zuwa 11 ko na watanni 18 zuwa 20 da WHO ta ba da shawarar amfani da su.

LALACEWAR JIJIYOYIN GAƁOƁI ina nufin lalacewar jijiyoyin da ke hannaye da ƙafafu, wadda kan haifar da dushewar ji da ciwo da ke farawa daga yatsu da yatsun ƙafafu, sannan su bazu zuwa sama.

RAGUWAR SAMAR DA KWAYOYIN JINI A ƁARGON KASHI na nufin raguwar samar da ƙwayoyin jini daga ɓargon ƙashi. Wannan na iya bayyana a matsayin ƙarancin jajayen ƙwayoyin jini (wanda ke haifar da gajiya), ƙarancin fararen ƙwayoyin jini (wanda ke ƙara haɗarin kamuwa da munanan cututtuka), ko kuma ƙarancin farantan jini (wanda ke sa mutum ya rika samun ƙuraje ko zubar jini cikin sauƙi).

RUKUNIN KWATANCE yana rage yiwuwar karkatuwa a cikin bincike, kuma yana bai wa masu bincike damar kwatanta yadda sabon magani ko sabon tsarin magani yake aiki kai tsaye da tsarin magani na yau da kullum da ake amfani da shi.

Illolin Magunguna da Cakuɗuwar Magunguna da Juna

Waɗannan sabbin tsare-tsaren magani na gajeren lokaci sun kawo gagarumin ci gaba wajen maganin ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su, duk da haka, kamar kowane tsarin magani, yana da muhimmanci a riƙa sa ido a kai a kai kan mutanen da ke karɓar magani domin gano duk wata illa da magungunan ka iya haifarwa. Akwai wasu muhimman illolin magani da ke da alaƙa da tsarin magani na BPaL(M). Waɗannan sun haɗa da:

- **raguwar samar da ƙwayoyin jini a ɓargon ƙashi:** raguwar samar da ƙwayoyin jini daga ɓargon ƙashi. Wannan na iya bayyana a matsayin ƙarancin jajayen ƙwayoyin jini (wanda ke haifar da gajiya), ƙarancin fararen ƙwayoyin jini (wanda ke ƙara haɗarin kamuwa da munanan cututtuka), ko kuma ƙarancin farantan jini (wanda ke sa mutum ya rika samun ƙuraje ko zubar jini cikin sauƙi);
- **lalacewar hanta sakamakon magani:** lalacewa ko raunin da magani ke haifarwa ga hanta;
- **lalacewar aikin zuciya (tsawaitawar tazarar QTc):** tangarɗa ga aikin bugawar zuciya, wanda kan iya haifar da matsanancin bugun zuciya da ba ya tafiya yadda ya kamata, kuma a wasu lokuta har ma ya jawo mutuwa;
- **lalacewar jijiyoyin gaɓoɓi:** lalacewar jijiyoyin da ke hannaye da ƙafafu, wadda kan haifar da dushewar ji da ciwo da ke farawa daga yatsu da yatsun ƙafafu, sannan su bazu zuwa sama; da
- **lalacewar jijiyar gani:** lalacewar jijiyar da ke isar da saƙonnin gani daga ido zuwa kwakwalwa, wadda kan haifar da ciwon ido da sauye-sauye a gani.[10]

Yana da muhimmanci mutanen da ke fama da cutar tarin fuka su san alamomin waɗannan sanannun illolin da magani kan haifar (duba Hoto na 3), kuma su sanar da ma'aikatan lafiya da ke kula da su da zarar sun fara bayyana, domin a duba su, a yi duk wasu gwaje-gwajen da suka dace, sannan a ɗauki matakan da suka dace. A mafi yawan lokuta, ana iya shawo kan waɗannan illolin ta hanyar gudanar da gwaje-gwajen sa ido lokacin fara magani da kuma a kai a kai a duk tsawon lokacin jinya. Waɗannan sun haɗa da **gwajin bugun da yanayin aikin zuciya (ECG)**, duba alamomin lalacewar jijiyoyin gaɓoɓi, gwajin kaifin gani da gwajin bambance launuka domin gano lalacewar jijiyar gani, da kuma **gwajin jini** (misali, cikakken ƙididdigar ƙwayoyin jini) domin gano ƙarancin jajayen ƙwayoyin jini da sauran alamomin raguwar samar da ƙwayoyin jini a ɓargon ƙashi.[11] Waɗannan gwaje-gwajen na yau da kullum kan taimaka wajen gano illolin magani tun da wuri, domin ma'aikatan lafiya su iya yin sauye-sauyen da suka dace don kare marasa lafiya daga wata illa.

GWAJIN BUGUN DA YANAYIN AIKIN ZUCIYA (ECG) gwaji ne da ake amfani da shi wajen auna yanayin aikin zuciya domin gano ko bugun zuciya yana tafiya yadda ya kamata ko kuma akwai tangarɗa a tsarin bugunta.

GWAJE-GWAJEN JINI su ne gwaje-gwajen ɗakin gwaje-gwaje da ake amfani da su wajen tantance yadda hanta da ƙoda suke aiki, da yin cikakken ƙididdigar ƙwayoyin jini, da kuma sauran gwaje-gwajen da ke nuna yadda sassan jiki suke aiki, waɗanda za a iya bibiyarsu ta hanyar gwajin jini.

HOTO NA 3. ALAMOMIN ILLOLIN MAGANI DA KE DA ALAKA DA TSARIN MAGANI

Alamomin **RAGUWAR SAMAR DA KWAYOYIN JINI A ƁARGON KASHI** na iya haɗawa da gajiya, kasala, jiri, ƙarancin numfashi, da kuma koɗewar fata, leɓɓa, da ƙarƙashin farata.

Alamomin **LALACEWAR HANTA SAKAMAKON MAGANI** na iya haɗawa da tashin zuciya, amai, gajiya, jin jiki ba daɗi, kaikayin fata, zazzaɓi, ciwo a saman gefen dama na ciki (ko kuma ciwo mai tsanani a ƙarƙashin haƙarƙari), da kuma rawayar fata da farin idanu).

TSAWAITAWAR TAZARAR QTC yawanci ba ta da wata alama, sai dai idan ta yi tsanani, tana iya haifar da bugun zuciya da ba ya tafiya yadda ya kamata, ƙarancin numfashi, ciwon ƙirji, jiri, kusa da suma, ko suma.

Alamomin **LALACEWAR JIJIYAR GANI** na iya haɗawa da ciwon ido, dusashewar gani, samun wuraren da ido ba ya iya gani, raguwar iya bambance launuka (misali, rashin iya bambance tsakanin ja da kore), ko kuma rasa gani gaba ɗaya.

Alamomin **LALACEWAR JIJIYOYIN GAƁOƁI** kuma na iya haɗawa da dushewar ji ko kaikayi a ƙafafu ko hannaye, jin zafi mai kama da ƙuna, soka ko harbi a wuraren da abin ya shafa, da kuma rasa daidaiton tafiya da motsi.

A wasu lokuta, wasu magunguna kan ƙara tsananta illolin da wasu magunguna ke haifarwa. Misali, magunguna biyu na iya haifar da illa iri ɗaya. Idan aka sha su tare, hakan kan ƙara yiwuwar faruwar wannan illa tare da ƙara tsananta ta. A wasu lokutan kuma, wani magani kan shafi yadda jiki ke sarrafa wani magani, wannan na iya sa adadin maganin ya ƙaru a cikin jiki, wanda hakan kan ƙara haɗarin samun illolin magani (ana kiran irin wannan da mu'amalar magunguna da juna). Saboda mu'amalar magunguna da juna na iya ƙara tsananta illolin magani, ya zama dole a ƙara yin taka-tsantsan tare da sa ido sosai idan ana amfani da wasu magunguna tare. Misali, idan ana amfani da bedaquiline da moxifloxacin tare da wasu magungunan da kan tsawaita tazarar QTc (misali, methadone da magungunan zazzabin cizon sauro), ya zama dole a ƙara yin taka-tsantsan tare da sa ido ta hanyar gwajin bugun da yanayin aikin zuciya (ECG). Haka kuma, idan ana amfani da linezolid tare da wasu magungunan da ke ƙara sinadarin serotonin a jiki (misali, misali, magungunan rage baƙin ciki da magungunan cututtukan ƙwaƙwalwa), dole ne a sanya ido sosai domin gano alamomin yawaitar **sinadarin serotonin a kwakwalwa**.[12] Dangane da magungunan cutar HIV kuwa, tsarin maganin HIV da ke amfani da magungunan da ke hana ƙwayar cutar haɗuwa da ƙwayoyin jiki (misali, dolutegravir) shi ne ya fi dacewa ga mutanen da ke rayuwa da HIV yayin da suke shan BPaL(M). Wannan kuwa saboda wasu magungunan HIV da ke ƙara ƙarfin aikin ritonavir (misali, lopinavir/ritonavir) kan ƙara adadin bedaquiline a cikin jiki, yayin da efavirenz ke rage adadin bedaquiline da pretomanid a cikin jiki.[13]

Ya kamata a kula da duk wata illa da magungunan tarin fuka suka haifar a matsayin wani ɓangare na kula da cutar tarin fuka. Haka kuma, ya kamata a kai rahoton irin waɗannan illolin ga Shirin Kasa na Yaƙi da Cutar Tarin Fuka (NTP) domin a ci gaba da bibiyar amincin magungunan tarin fuka da tsare-tsaren maganinsu a matakin ƙasa. Ana kiran wannan **tsarin da sa ido mai inganci kan amincin magungunan tarin fuka da gudanar da illolinsu (aDSM)**.

Yaya Batun Mutanen da Ke Rayuwa da HIV?

Mutanen da ke rayuwa da HIV sun shiga cikin dukkan manyan gwaje-gwaje guda uku da suka samar da hujjojin da WHO ta dogara da su wajen amincewa da amfani da tsare-tsaren magani na BPaL(M), duk da cewa adadinsu bai yi yawa ba. A gwaje-gwajen Nix-TB, ZeNix, da TB-PRACTECAL, mahalarta 56 (kashi 51 cikin 100), 36 (kashi 20 cikin 100), da 140 (kashi 27.6 cikin 100), bi da bi, mutane ne da ke rayuwa da HIV. Matsakaicin adadin ƙwayoyin CD4 ya kasance 343 (55-1023), 421 (122-1480), da 330 (209-547) a kowace mm^3, bi da bi. Sakamakon magani da kuma amincin magungunan (wato, yawan faruwa da tsananin illolin magani) sun kasance kusan iri ɗaya tsakanin mutanen da ke rayuwa da HIV da waɗanda ba su da HIV da suka shiga gwaje-gwajen Nix-TB da ZeNix. A gwajin ZeNix, mutum 32 cikin 36 (kashi 89 cikin 100) daga cikin mutanen da ke rayuwa da HIV sun samu sakamakon magani mai gamsarwa bayan sun karɓi BPaL, idan aka kwatanta da mutum 126 cikin 145 (kashi 87 cikin 100) daga cikin mahalartan da ba su da HIV.[14]

A gwajin TB-PRACTECAL, sakamakon magani ya ci gaba da kasancewa mafi kyau a tsakanin mutanen da ke rayuwa da HIV da aka raba ta hanyar bazata domin su karɓi BPaLM idan aka kwatanta da waɗanda suka karɓi tsare-tsaren magani masu tsawon lokaci a rukunin kwatance (duba Tebur na 1). Sai dai bambancin bai fito fili sosai ba, kuma bai kai matakin da ake ɗauka yana da muhimmancin ƙididdiga ba, a wani ƙarin nazari da aka yi domin tantance ko haɗarin samun sakamakon magani marar gamsarwa ya bambanta tsakanin mutanen da ke rayuwa da HIV a cikin gwajin. Wataƙila hakan ya faru ne saboda adadin mutanen da ke rayuwa da HIV da suka shiga gwajin bai yi yawa ba.

JADAWALI NA 1. KARIN NAZARIN GWAJIN TB-PRACTECAL GA MUTANEN DA KE RAYUWA DA HIV

Rukunin Mahalarta	Sakamakon Magani Marar Gamsarwa		Bambancin Haɗari (Tazarar Amincewa)
	BPaLM	Kwatance	
Masu ɗauke da HIV	7/34 (20.6%)	9/38 (23.7%)	-3.1% (-23.8 zuwa 17.6%)
Marasa HIV	9/103 (8.7%)	47/99 (47.5%)	-38.7% (-50.9 zuwa -26.6%)

SEROTONIN SYNDROME wata matsalar lafiya ce mai tsanani da magani kan haifar, wadda kan iya jawo mutuwa, tana faruwa ne idan sinadarin serotonin ya yi yawa a tsakanin jijiyoyin kwakwalwa.

SA IDO MAI INGANCI KAN AMINCIN MAGUNGUNA (ADSM) iwani tsari ne da ya kunshi matakan kulawa da gwaje-gwaje waɗanda, idan aka aiwatar tare da amfani da sabbin magunguna da tsare-tsaren magani, kan taimaka wajen gano, kula da kuma kai rahoton illolin magunguna da ake zargi ko aka tabbatar sun faru.

BAMBANCIN HAƊARI shi ne bambancin da ke tsakanin haɗarin faruwar wani sakamako a rukunin da aka ba wani magani ko aka yi masa wani tsari na magani da kuma rukunin da ba a ba shi ba. A wannan binciken, ana nufin bambancin da ke tsakanin haɗarin samun sakamakon magani marar gamsarwa a cikin mahalartan da aka raba ta hanyar bazata domin su karɓi BPaLM da waɗanda suka karɓi tsare-tsaren magani masu tsawon lokaci a rukunin kwatance.

Idan bambancin haɗarin ya kasance ƙasa da sifili, hakan yana nufin cewa amfani da BPaLM ya rage haɗarin samun sakamakon magani marar gamsarwa. A wannan binciken kuwa, tasirin kariyar da BPaLM ke bayarwa wajen rage sakamakon magani marar gamsarwa bai fito fili sosai ba a tsakanin mutanen da ke rayuwa da HIV.

Tsarin magani na BPaL(M) da sauran tsare-tsaren magani da WHO ta ba da shawarar amfani da su wajen maganin ciwon tarin fuka da ya riga ya bijire wa magungunan da aka saba amfani da su iri ɗaya ne ga mutanen da ke rayuwa da HIV da kuma waɗanda ba sa ɗauke da HIV, ba tare da la'akari da adadin ƙwayoyin CD4 da suke da su ba. Sai dai, wasu mu'amaloli tsakanin magungunan tarin fuka da na HIV, tare da wasu illolin magunguna da suke kama da juna, na buƙatar kulawa ta musamman da kuma gudanarwa cikin taka-tsantsan. Misali, mutanen da ke rayuwa da HIV waɗanda ke shan protease inhibitors ko efavirenz za su buƙaci a sanya musu ido sosai ko kuma a sauya musu magungunan HIV kafin a fara musu maganin ciwon tarin fuka da ya riga ya bijire wa magunguna, saboda mu'amalar magungunan da aka bayyana a sashe na baya. Haka kuma, wasu mutanen da ke rayuwa da HIV na iya buƙatar a sauya tsarin magungunansu na HIV ko na ciwon tarin fuka da ya riga ya bijire wa magunguna saboda wasu illolin magunguna da suke kama da juna (misali, wasu magungunan HIV ma kan haifar da lalacewar jijiyoyin gaɓoɓi da kuma raguwar samar da ƙwayoyin jini a ɓargon ƙashi).

Yaya Batun Yara da Matasa?

An haɗa matasa da yara masu shekaru 14 zuwa sama a cikin gwaje-gwajen Nix-TB, ZeNix, da TB-PRACTECAL. Saboda haka, shawarar WHO ta amfani da tsarin magani na BPaL(M) ta shafi mutanen da shekarunsu suka kai 14 ko sama da haka. An daɗe ana amfani da bedaquiline, linezolid, da moxifloxacin wajen maganin ciwon tarin fuka da ya riga ya bijire wa magunguna a yara na kowane zamani. Sai dai har yanzu babu isassun bayanai game da ƙwayar da ta dace da kuma amincin pretomanid a yara.

TB Alliance na haɗin gwiwa da Cibiyar Bincike ta Kasa da Kasa kan HIV/AIDS a Mata Masu Juna Biyu, Yara da Matasa (IMPAACT), wadda Cibiyoyin Lafiya na Kasa na Amurka (NIH) ke tallafawa, wajen gudanar da wani bincike kan yadda jikin yara ke sarrafa pretomanid **pharmacokinetic (PK)** da kuma amincinsa (IMPAACT 2034; NCT05586230). A halin yanzu, binciken yana karɓar 'yan mata kawai, saboda binciken da aka yi a berayen gwaji ya nuna cewa pretomanid ya rage haihuwa a berayen maza. Wani nazari da ya tattara sakamakon bincike da aka gudanar kan sinadaran haihuwa na maza da suka karɓi pretomanid ya riga ya fito [15,16] kuma, ana sa ran samun ƙarin bayanai nan ba da jimawa ba daga wani bincike da ke mayar da hankali kan amincin haihuwa ta fuskar adadin maniyyi (PaSEM; NCT04179500) waɗannan bayanai za su taimaka wajen ba masu bincike damar haɗa yara maza a bincike na gaba kan tsare-tsaren magani da suka ƙunshi pretomanid.

Har sai an samu bayanai game da yadda jikin yara ke sarrafa pretomanid da kuma amincinsa, WHO tana ba da shawarar cewa yara ƙasa da shekaru 14 su riƙa karɓar tsare-tsaren magani na ciwon tarin fuka da ya riga ya bijire wa magunguna waɗanda WHO ta amince da su kuma ba su ƙunshi pretomanid ba, misali, tsarin magani na watanni 9 zuwa 11 wanda ake sha baki kawai (duba Sashe na III). Masana a wannan fanni sun bayyana cewa ya dace yara su riƙa samun sauƙaƙakkun tsare-tsaren magani masu ƙunshe da magunguna huɗu zuwa biyar, tare da daidaita tsawon lokacin magani gwargwadon tsananin cutar.[17] Ana samun nau'ikan magungunan yara na dukkan magungunan mataki na biyu, ban da pretomanid, ta hanyar shirin Stop TB Partnership Global Drug Facility (GDF).[18]

Yaya Batun Mata Masu Ciki?

An cire mata masu ciki a cikin gwaje-gwajen Nix-TB, ZeNix, da gwajin TB-PRACTECAL. Kodayake, mahalarta guda 16 sun ɗauki ciki yayin da ake gudanar da gwajin TB-PRACTECAL. Daga cikin mahalarta 14 da aka san sakamakon cikinsu, an samu haihuwar jarirai 10 da rai, zubar da ciki da aka yi da gangan guda uku, da kuma zubar da ciki ba da gangan ba guda ɗaya.[19] Mahalarta guda huɗu kuma sun ɗauki ciki yayin da ake gudanar da gwaje-gwajen Nix-TB da ZeNix. Sakamakon cikin ya kasance kamar haka: an haifi jariri lafiyayye guda ɗaya, an zubar da ciki saboda dalilan lafiya guda ɗaya, an samu ciki a wajen mahaifa guda ɗaya, da kuma zubar da ciki ba da gangan ba guda ɗaya.[20] Saboda ƙarancin waɗannan bayanai, jagororin WHO sun ba da shawarar cewa mata masu ciki su karɓi tsarin magani na watanni 9 zuwa 11 wanda ake sha baki kawai (duba sashe na III), har sai an samu bayanai game da amfani da pretomanid a lokacin ɗaukar ciki. Mata masu ciki na iya karɓar tsarin magani da aka tsara musamman domin su, wanda zaɓin magungunan da ya ƙunsa ya dogara ne kan wanda zaɓin magungunan da ya ƙunsa ya dogara ne kan haɗa bayanan da aka samu daga binciken dabbobi da na mutane, ra'ayoyi da ƙwarewar masana, da kuma nazarin amfanin magani da haɗurran da ka iya tattare da shi.[21] Bayanan da aka

PHARMACOKINETICS (PK)
nazari ne da ke bayyana yadda jiki ke sarrafa magani bayan an sha shi. Fahimtar yadda jiki ke tsotsar magani, yadda yake sarrafa shi, da yadda yake fitar da shi daga jiki na taimakawa wajen tantance yawan maganin da jiki ke samu da kuma ƙwayar maganin da ta dace.

samu daga ƙananan rukunin mata masu ciki a Afirka ta Kudu waɗanda suka karɓi tsare-tsaren magani masu ɗauke da bedaquiline da delamanid sun nuna cewa ana iya amfani da waɗannan magunguna cikin aminci a lokacin ɗaukar ciki.[22,23]

Bayanan da aka samu daga binciken dabbobi ba su nuna cewa amfani da pretomanid a lokacin ɗaukar ciki yana haifar da **nakasar jariri** ko wata illa ga ɗan tayin ba,[24] sai dai har yanzu ana buƙatar bayanai daga binciken da aka yi a mutane. PRISM-TB, wani bincike da Shirin SMART4TB mai samun tallafi daga USAID ke ɗaukar nauyi domin tantance amfani da **tsarin daidaita magani gwargwadon rukunin marasa lafiya** a tsarin magani na BPaL(M), zai ba mahalartan da suka ɗauki ciki yayin gudanar da binciken damar yanke shawarar ko za su ci gaba da amfani da tsarin magani na BPaL(M) ko a'a.

Yaya Batun Sauran Tsare-tsaren Magani na Watanni Shida?

Bincike guda biyu da USAID ta tallafa wa, wato BEAT Tuberculosis (NCT04062201), da aka gudanar a Afirka ta Kudu da kuma BEAT TB India (CTRI/2019/01/017310) sun tantance wani tsarin magani na watanni shida da ya ƙunshi bedaquiline, delamanid, da linezolid, tare da levofloxacin ko clofazimine (gwargwadon ko ƙwayar cutar ta nuna juriyar magungunan fluoroquinolones ko a'a), domin maganin RR-/MDR-TB da pre-XDR-TB. Binciken da aka gudanar a Indiya bincike ne mai rukunin mahalarta guda ɗaya. Ya nuna cewa tsarin magani na watanni shida mai ɗauke da bedaquiline da delamanid yana da aminci kuma yana da inganci, inda aka samu Sakamakon Magani Mai Gamsarwa a tsakanin kashi 86 cikin 100 na mahalarta watanni shida bayan kammala magani.[25] Binciken da aka gudanar a Afirka ta Kudu kuwa bincike ne da aka raba mahalarta ta hanyar bazata tare da rukunin kwatance. Ya nuna cewa inganci da amincin tsarin magani na watanni shida mai ɗauke da bedaquiline da delamanid sun yi daidai da na tsarin magani na watanni 9 zuwa 11, inda aka samu Sakamakon Magani Mai Gamsarwa a tsakanin kashi 87 cikin 100 na mahalarta watanni shida zuwa shekara guda bayan kammala magani.[26] A lokacin da ake rubuta wannan jagora, WHO ba ta riga ta kira Kungiyar Masana Masu Shirya Jagorori (Guideline Development Group, GDG) domin ta yi nazarin waɗannan da sauran bayanai kan tsare-tsaren magani na watanni shida ba[27] (haka kuma, ba ta yi nazarin bayanan da suka shafi tsare-tsaren magani na watanni tara ba, waɗanda za su iya bayyana sabuwar rawar da delamanid zai taka a matsayin wani ɓangare na gajerun tsare-tsaren magani na ciwon tarin fuka da ya riga ya bijire wa magunguna).[28,29]

Abu mai muhimmanci shi ne, binciken BEAT Tuberculosis da aka gudanar a Afirka ta Kudu ya haɗa da mata masu ciki da kuma yara masu shekaru shida zuwa sama, waɗanda a halin yanzu ba su cancanci cin gajiyar tsarin magani na watanni shida na BPaL(M) ba. Dangane da sakamakon nazarin da Kungiyar Masana Masu Shirya Jagorori ta WHO (GDG) za ta yi kan waɗannan bayanai, akwai yiwuwar mata masu ciki da yara su samu damar cin gajiyar tsarin magani na watanni shida mai ƙunshe da magunguna huɗu, duk da cewa har yanzu ana ci gaba da tattara bayanai game da amfani da pretomanid a waɗannan rukunin mutane.

III. KA'IDOJIN TSARE-TSAREN MAGANI NA HUKUMAR LAFIYA TA DUNIYA

Sabunta *Ka'idojin WHO kan Cutar Tarin Fuka na shekarar 2022, Sashe na 4: Magani – Maganin Cutar Tarin Fuka da ya Riga ya Bijire wa Magunguna* ya sauya tsarin magani da aka amince da shi a duniya, ta hanyar ba da shawarar amfani da tsarin magani na watanni shida da ya ƙunshi bedaquiline, pretomanid, da linezolid, tare da ko ba tare da moxifloxacin ba. Domin maganin ciwon tarin fuka da ya riga ya bijire wa magunguna, ka'idojin WHO yanzu sun haɗa da tsare-tsaren magani na watanni shida, da na watanni 9 zuwa 11 da aka daidaita, da kuma na watanni 18 zuwa 20 da ake tsara wa kowane mara lafiya gwargwadon yanayinsa (ana tsara su bisa ga Jadawali na 2). Dukkan tsare-tsaren maganin sun dogara ne da amfani da bedaquiline, yayin da sauran magungunan da tsawon lokacin magani suke dogara da irin juriyar magungunan da ƙwayar cutar ta nuna da kuma wasu dalilai. Ka'idojin WHO sun ba da fifiko ga amfani da tsarin magani na watanni shida fiye da amfani da tsare-tsaren magani masu tsawon lokaci. Abubuwan da ya kamata a yi la'akari da su wajen zaɓen tsarin magani sun haɗa da **irin magungunan da ƙwayar cutar ke nuna juriyarsu** a jikin mutum ɗaya, ko mara lafiyan ya taɓa amfani da manyan magungunan mataki na biyu na cutar tarin fuka, nau'i da tsananin cutar,

TERATOGENICITY na nufin ikon wani magani ko wani abu na haifar da nakasa ga ɗan tayin da ke cikin mahaifa.

STRATIFIED MEDICINE na nufin wata hanya ta tsara magani inda ake daidaita tsawon lokacin magani da kuma irin magungunan da tsarin maganin ya ƙunsa, gwargwadon abubuwan da ke ƙara haɗarin samun sakamakon magani marar gamsarwa.

shekarunsa, da kuma kasancewar wasu cututtuka da ke tare da ita, wasu cututtuka da yake fama da su, ko wasu yanayin lafiya.

6BPaL(M): tsarin magani na watanni shida da ya ƙunshi bedaquiline, pretomanid, da linezolid, tare da moxifloxacin ga RR-/MDR-TB, ko kuma ba tare da moxifloxacin ba ga pre-XDR-TB. Ana iya tsawaita lokacin magani zuwa watanni tara idan har sakamakon gwajin al'adar majina ya ci gaba da nuna ƙwayar cutar tsakanin wata na huɗu da na shida na magani. Idan an yi rashin shan wasu ƙwayoyin magani, ana kuma iya tsawaita lokacin magani domin cike gibin adadin ƙwayoyin da ba a sha ba (har zuwa wata guda). Akwai hanyoyi biyu da aka ba da shawarar amfani da su wajen ba da bedaquiline: (1) miligiram 400 a kowace rana na tsawon makonni biyu, sannan miligiram 200 sau uku a mako; ko (2) miligiram 200 a kowace rana na tsawon makonni takwas, sannan miligiram 100 a kowace rana. Ana ba da pretomanid da moxifloxacin a ƙwayar miligiram 200 da miligiram 400 a kowace rana, bi da bi. Kwayar linezolid da aka ba da shawarar amfani da ita a tsarin magani na BPaL(M) ita ce miligiram 600 a kowace rana. Ana iya sauya ƙwayar linezolid – amma sai bayan makonni tara na farko na magani – domin rage illar gubar magani da sauran illolin magani kamar lalacewar jijiyoyin gaɓoɓi, kumburin jijiyar gani, da raguwar samar da ƙwayoyin jini a ɓargon ƙashi. A halin yanzu, babu bayanan da ke nuna yiwuwar maye gurbin moxifloxacin da levofloxacin.

9-11 Bdq Lzd hdH Lfx Cfz Z E: tsarin magani na watanni 9 zuwa 11 wanda ya ƙunshi levofloxacin, clofazimine, pyrazinamide, da ethambutol, tare da ƙarin bedaquiline a watanni shida na farko, linezolid a watanni biyu na farko, da isoniazid mai ƙwaya mai yawa a watanni huɗu zuwa shida na farko, domin maganin RR-/MDR-TB. Idan sakamakon gwajin majina ya ci gaba da nuna kasancewar ƙwayar cutar a ƙarshen wata na huɗu na magani, ana iya tsawaita lokacin magani zuwa jimillar watanni 11, sannan a tsawaita amfani da bedaquiline daga watanni shida zuwa watanni tara. Ana ba da bedaquiline a ƙwayar miligiram 200 a kowace rana na tsawon makonni takwas, sannan miligiram 100 a kowace rana. Ana ba da linezolid a ƙwayar miligiram 600 a kowace rana. Ba a yarda a sauya ƙwayar linezolid a wannan tsarin magani ba, domin ana amfani da shi ne a watanni biyu na farko na magani kawai. Ana iya amfani da ko dai levofloxacin ko moxifloxacin a tsarin magani na watanni 9 zuwa 11. Sai dai levofloxacin na da ƙananan haɗarin haifar da tsawaitawar tazarar QTc idan aka kwatanta da moxifloxacin. Ana ba da shawarar amfani da wannan tsarin magani ne kawai wajen maganin RR-/MDR-TB. Idan an gano cewa ƙwayar cutar ta bijire wa tasirin magungunan fluoroquinolones, ya kamata a sauya mara lafiya zuwa tsarin magani mai tsawon lokaci da aka tsara musamman gwargwadon yanayinsa.

Tsarin magani na watanni 18 zuwa 20 da ake tsara wa kowane mara lafiya gwargwadon yanayinsa: wannan tsarin magani ya ƙunshi aƙalla magunguna huɗu da ake zaɓa bisa ga irin magungunan da ƙwayar cutar ke nuna juriyarsu da kuma yadda aka rarraba magungunan a Jadawali na 2. Misali, ana iya amfani da dukkan magunguna uku na rukuni na A tare da aƙalla magani guda ɗaya na rukuni na B. Ko kuma a yi amfani da magunguna biyu na rukuni na A tare da duka magunguna biyu na rukuni na B. Ana ƙara magungunan rukuni na C ne idan ba zai yiwu a haɗa tsarin maganin ta amfani da magungunan rukuni na A da na B kaɗai ba. An jera magungunan rukuni na C bisa gwargwadon daidaito tsakanin amfaninsu da illolin da ka iya tattare da su, saboda haka, ya kamata a riƙa zaɓar su daga sama zuwa ƙasa. Ya kamata a yi amfani da tsarin magani na watanni 18 zuwa 20 ne kawai idan ba zai yiwu a yi amfani da gajerun tsare-tsaren magani ba. Wannan ya haɗa da yanayin da mara lafiya bai nuna sauƙi bayan amfani da gajerun tsare-tsaren magani ba, ko kuma idan ƙwayar cutar ta nuna ƙarin juriya ga magungunan fluoroquinolones da sauran magungunan rukuni na A (wato XDR-TB), ko kuma idan mara lafiya ba zai iya jure wa manyan magungunan da ake amfani da su a gajerun tsare-tsaren magani ba, ko kuma idan cutar ta yi tsanani, ciki har da wasu nau'ikan tarin fuka da ke shafar sassan jiki da ke wajen huhu, ko kuma idan akwai wasu matsalolin lafiya da ke buƙatar a tsara masa tsarin magani na musamman.

BAYANIN JURIYAR KWAYAR CUTAR GA MAGUNGUNA
na nufin bayanan da ke nuna magungunan da aka tabbatar cewa ƙwayar cutar ba ta nuna musu juriya ba, (ko kuma magungunan da aka tabbatar tana nuna musu juriya).

JADAWALI NA 2. RARRABON MAGUNGUNAN DA WHO TA BA DA SHAWARAR A YI AMFANI DA SU A TSARE-TSAREN MAGANI DA AKE TSARAWA MUSAMMAN GWARGWADON YANAYIN ƙOWANE MARA LAFIYA

Rukuni [matakai domin haɗa da tsarin magani da aka tsara musamman]	**Magani(unguna)**	**Gajartattun Suna(yen)**
Rukuni na A [haɗa da dukkan magunguna uku]	levofloxacin ko moxifloxacin	Lfx M, Mfx
	bedaquiline	B, Bdq
	linezolid	L, Lzd
Rukuni na B [ƙara magani ɗaya ko dukka biyun]	clofazimine	Cfz
	cycloserine ko terizidone	Cs Trd
Rukuni na C [ana ƙara su domin cika tsarin magani zuwa magunguna huɗu ko biyar masu tasiri idan ba za a iya amfani da magungunan rukuni na A da B ba]	ethambutol	E
	delamanid	D, Dlm
	pyrazinamide	Z, PZA
	imipenem-cilastatin or meropenem	Imp-Cln Mpm
	amikacin (ko streptomycin)	Am (S)
	prothionamide ko ethionamide	Pto Eto
	p-aminosalicylic acid	PAS

Gajerun tsare-tsaren magani da ba su ƙunshi pretomanid ba domin yara

Har sai an samu bayanai game da amfani da pretomanid a yara, WHO ta ba da shawarar cewa yaran da ke fama da ciwon tarin fuka da ya riga ya bijire wa magunguna su karɓi tsarin magani na watanni 9 zuwa 11 da aka daidaita ko kuma tsarin magani na watanni 18 zuwa 20 da ake tsara wa kowane mara lafiya gwargwadon yanayinsa. Tsare-tsaren magani na gajeren lokaci da ake tsara wa kowane mara lafiya gwargwadon yanayinsa su ma zaɓi ne da ya dace ga yara, domin yawanci **ƙwayoyin cutar tarin fuka ba su da yawa a jikinsu**. *Haɗaɗɗun Ka'idojin WHO kan Cutar Tarin Fuka: Sashe na 5: Kula da Cutar Tarin Fuka a Yara da Matasa* sun ba da shawarar cewa tsawon lokacin magani ya dogara da irin yadda cutar ta yaɗu, da tsananinta, da kuma yadda mara lafiya yake amsawa ga magani. Haka kuma, ana iya rage jimillar tsawon lokacin magani zuwa ƙasa da watanni 18 ga yaran da cutarsu ba ta yi tsanani sosai ba.[30]

TARIN FUKA MAI KARANCIN KWAYOYIN CUTA na nufin ciwon tarin fuka da ke faruwa sakamakon ƙarancin ƙwayoyin cutar tarin fuka a jikin mara lafiya.

MUHIMMANCIN GWAJIN TANTANCE KO KWAYAR CUTA TA BIJIRE WA TASIRIN MAGUNGUNA

Ana amfani da **Gwajin tantance ko ƙwayar cuta ta bijire wa tasirin magunguna (DST)** domin gano magungunan da ƙwayar cutar ta bijire wa tasirinsu, da kuma taimakawa wajen zaɓen tsarin maganin da ya dace. Samun damar yin wannan gwaji yana da matuƙar muhimmanci wajen zaɓen tsarin maganin da ya dace, inganta sakamakon magani, hana ƙwayar cutar ƙara bijire wa tasirin wasu magunguna, da kuma kare marasa lafiya daga illolin magungunan da ba su da buƙata.

GWAJIN TANTANCE KO KWAYAR CUTA TA BIJIRE WA TASIRIN MAGUNGUNA (DST) su ne gwaje-gwajen da ake amfani da su domin tantance ko kwayar cutar ta bijire wa tasirin wasu magunguna.

Dangane da maganin da ake son tantancewa, ana iya gudanar da gwajin DST ta amfani da **gwaje-gwajen ƙwayoyin halitta** ko kuma gwaje-gwajen da ake gudanarwa ta hanyar **al'adar ƙwayoyin cuta**. Akwai gwaje-gwajen ƙwayoyin halitta masu saurin bayar da sakamako (wanda ake kira gwaje-gwajen ƙwayoyin halitta na molecular) domin gano ko ƙwayar cutar ta bijire wa tasirin rifampicin, isoniazid, da magungunan fluoroquinolones. Yawanci ana samar da gwaje-gwajen ƙwayoyin halitta masu saurin bayar da sakamako a dakunan gwaje-gwaje da ke kusa da wuraren da ake ba da kulawar lafiya, kuma suna iya fitar da sakamakon gwaji cikin ƙasa da sa'o'i biyu. Akwai kuma **manyan na'urorin gwajin ƙwayoyin halitta masu iya gwada samfurori masu yawa lokaci guda** domin gano ko ƙwayar cutar ta bijire wa tasirin rifampicin da isoniazid a manyan dakunan gwaje-gwaje. Sai dai galibi suna dogara da tsarin aika samfurori da jigilar su zuwa waɗannan dakunan gwaje-gwaje, wanda kan haifar da jinkiri mai yawa wajen samun sakamakon gwaji. Bayan haka, ana yawan yin ƙarin gwajin DST ga magungunan da gwaje-gwajen ƙwayoyin halitta masu saurin bayar da sakamako ko manyan na'urorin gwajin ƙwayoyin halitta ba su rufe ba. Ana yin hakan ta hanyar gwajin **line probe assay (LPA)** ko gwajin culture, domin tantance ko ƙwayar cutar ta ƙara bijire wa tasirin wasu magunguna da kuma ko akwai buƙatar yin gyara ga tsarin maganin da ake amfani da shi. A shekarar 2023, WHO ta kuma amince da amfani da **fasahar tantance jerin wasu zaɓaɓɓun ƙwayoyin halitta na zamani**.[31] Sai dai, saboda har yanzu bayanai kan sauye-sauyen ƙwayoyin halitta da ke sa ƙwayar cutar ta bijire wa tasirin sabbin magunguna da waɗanda aka sake amfani da su (misali, bedaquiline, linezolid, da pretomanid)[32] ba su wadatar ba domin tantance ƙwayoyin halittar da ake nema, har yanzu ana buƙatar yin gwajin culture domin tabbatar da cewa ƙwayar cutar ba ta bijire wa tasirin waɗannan magunguna ba.

Domin samun ƙarin bayani game da hanyoyi da fasahohin da ake amfani da su wajen gudanar da gwajin DST, da kuma buƙatun da suka shafi wannan fanni tare da muhimman saƙonnin wayar da kai, a duba littafin *An Activist's Guide to Tuberculosis Diagnostic Tools*.

IV. BAYANAI KAN FARASHI DA SAMUN MAGUNGUNA

Tsare-tsaren maganin da WHO ta ba da shawarar amfani da su wajen maganin ciwon tarin fuka da ya riga ya bijire wa magunguna sun haɗa da amfani da sabbin magunguna (misali, bedaquiline, pretomanid, delamanid) da kuma magungunan **da aka sake amfani da su** (misali, moxifloxacin, linezolid). Ba kamar yadda lamarin yake a wasu shekarun da suka gabata ba, a yanzu akwai kamfanoni da dama da ke samar da sabbin magungunan cutar tarin fuka (duba Jadawali na 3). Sakamakon haka, farashin sabbin magungunan cutar tarin fuka da kuma kuɗin tsare-tsaren magani sun ragu sosai. Idan aka sayi magungunan ta hanyar Stop TB Partnership **Global Drug Facility (GDF)**, kuɗin tsare-tsaren maganin su ne kamar haka:[33]

- Dalar Amurka $458 domin tsarin magani na watanni shida na BPaL(M);
- Dalar Amurka $409 domin tsarin magani na watanni 9 zuwa 11 da aka daidaita; da
- Dalar Amurka $645 zuwa $1,500 (ko fiye da haka) domin tsarin magani na watanni 18 zuwa 20 da ake tsara wa kowane mara lafiya gwargwadon yanayinsa, bisa ga tsawon lokacin magani da kuma irin magungunan da tsarin maganin ya ƙunsa.

GWAJE-GWAJEN ƘWAYOYIN HALITTA (e.g., GeneXpert, Truenat) su ne gwaje-gwajen da ke gano cutar tarin fuka da kuma ko ƙwayar cutar ta bijire wa tasirin magunguna ta hanyar ninka ƙwayoyin halittar (DNA) na ƙwayar cutar da kuma gano sauye-sauyen ƙwayoyin halitta da ke sa ƙwayar cutar ta bijire wa tasirin wasu takamaiman magunguna.

GWAJE-GWAJEN CULTURE su ne gwaje-gwajen da ke gano cutar tarin fuka da kuma ko ƙwayar cutar ta bijire wa tasirin magunguna ta hanyar ƙoƙarin raya ƙwayar cutar a dakin gwaje-gwaje, ciki har da lokacin da ake gwada ta tare da magungunan cutar tarin fuka (wani nau'in gwajin phenotypic).

MANYAN NA'URORIN GWAJIN SAMFURORI MASU YAWA LOKACI GUDA waɗannan manyan na'urorin gwaji ne da ake girkawa a manyan dakunan gwaje-gwaje, kuma suna iya gudanar da gwaje-gwajen ƙwayoyin halitta kan samfurori da dama lokaci guda (wani nau'in gwajin ƙwayoyin halitta).

GWAJE-GWAJEN LINE PROBE ASSAYS (LPAS) su ne gwaje-gwajen da ke gano ko ƙwayar cutar ta bijire wa tasirin magunguna ta hanyar amfani da wasu sinadarai na gwaji (probes) waɗanda ke manne wa ƙwayoyin halittar (DNA) na ƙwayar cutar, sannan su canza launi idan sun gano sauye-sauyen ƙwayoyin halitta da ke sa ƙwayar cutar ta bijire wa tasirin wasu takamaiman magunguna (wani nau'in gwajin ƙwayoyin halitta).

FASAHOHIN TARGETED NEXT-GENERATION SEQUENCING TECHNOLOGIES su ne gwaje-gwajen ƙwayoyin halitta masu saurin bayar da sakamako waɗanda ke iya tantance ko ƙwayar cutar ta bijire wa tasirin magungunan cutar tarin fuka har guda 15, ciki har da rifampicin, isoniazid, moxifloxacin, bedaquiline, da linezolid. Ana ɗaukar wannan fasaha a matsayin wadda ta fi dacewa da amfani a manyan ɗakunan gwaje-gwaje.

MAGUNGUNAN DA AKA SAKE AMFANI DA SU magunguna ne da aka fara ƙera domin magance wasu cututtuka, amma daga baya aka sake amfani da su wajen maganin cutar tarin fuka (misali, an fara ƙera clofazimine ne domin maganin kuturta).

THE GLOBAL DRUG FACILITY (GDF) wata kafa ce ta haɗaɗɗen tsarin saye da samar da magunguna daga wuri guda, wadda ke ba da tarin ayyuka da suka haɗa da sayen kayayyakin cutar tarin fuka bisa tsari, da daidaita harkokin kasuwa, tare da bayar da tallafin fasaha da kuma gina ƙwarewar shirye-shiryen yaki da cutar tarin fuka.

JADAWALI NA 3. HALIN SAMUN INGANTATTUN SABBIN MAGUNGUNAN CUTAR TARIN FUKA DA AKA TABBATAR DA INGANCINSU A KASASHE MASU ƘARANCIN KUƊI DA MASU TSAKA-TSAKIN KUƊI

Magani	Kamfanoni masu samar da su	Farashi	Yankin da Lasisi ya shafa
Bedaquiline	Johnson & Johnson	$130*	Na duniya (haɗa da Pharmstandard ta hanyar GDF; ba tare da Pharmstandard ta hanyar sauran hanyoyin samar da su)
	Pharmstandard	$1,650†	Rasha, Armenia, Azerbaijan, Belarus, Georgia, Kyrgyzstan, Kazakhstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan
	Lupin	$194*	Dukkan LMIC‡
	Macleods	$190*	Dukkan LMIC‡
Pretomanid	Viatris	$240*	Kasashe 214 (70 na musamman) — duba medspal.org
	Macleods	$238*	Kasashe 143 — duba medspal.org
	Lupin	Ba a san ba	Kasashe 140 — duba medspal.org
	Hongqi	Ba a san ba	Sin
	Remington	Ba a san ba	Pakistan
Delamanid	Otsuka	$1,190	89 LMICs
	R-Pharm	$1,488†	Rasha, Armenia, Azerbaijan, Belarus, Georgia, Kyrgyzstan, Kazakhstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan
	Viatris	$1,242	Na duniya (ba tare da Otsuka + R-Pharm)

Yankin da lasisi ya shafa na nufin ƙasashe ko yankunan da masu haƙƙin mallaka suka riƙe ko suka ba da lasisin sayar da kayayyakin, ba ƙasashe ko yankunan da aka ba da haƙƙin mallaka ba, ko kuma inda ake jiran amincewa ko aka shigar da buƙatar haƙƙin mallaka.
An nuna farashin a dalar Amurka, USD, na tsarin magani na watanni shida, kuma ga ƙasashe masu ƙaramin da matsakaicin ƙarfin tattalin arziki kaɗai.
*Wannan shi ne farashin da ake samu ta hanyar GDF. Kasashen da ke sayen magunguna kai tsaye daga kamfanoni na iya biyan wani farashi dabam.
†Wannan shi ne farashin da ake samu ga Rasha.
‡A watan Satumba na shekarar 2023, kamfanin Johnson & Johnson ya bayyana a fili cewa ba zai tilasta aiwatar da haƙƙoƙinsa na ƙarin lasisin mallaka kan bedaquiline ba wajen maganin cutar tarin fuka da ta riga ta bijire wa magunguna (DR-TB) a ƙasashe 134 masu ƙaramin da matsakaicin ƙarfin tattalin arziki.

Masana daga Jami'ar Liverpool sun yi hasashen cewa kamfanonin da ke ƙera magungunan irin na asali (generic medicines) za su iya ƙera sabbin magungunan cutar tarin fuka a farashin Dalar Amurka $8 zuwa $17 a kowane wata ga bedaquiline, $11 zuwa $34 a kowane wata ga pretomanid, da kuma $5 zuwa $16 a kowane wata ga delamanid.[34] An yi wannan hasashe ne bisa tsammanin za a samar da magungunan da za su wadaci tsarin magani 108,000 a kowace shekara. Har yanzu ba a samu cimma waɗannan farashi ga ko wane magani ba. Mafi ƙarancin farashin da aka nuna a Jadawali na 3 shi ne Dalar Amurka $22 a kowane wata ga bedaquiline, $40 a kowane wata ga pretomanid, da kuma $200 a kowane wata ga delamanid. Idan aka kwatanta da haka, magungunan da aka sake amfani da su waɗanda haƙƙin mallakarsu ya ƙare (off-patent medicines), kuma waɗanda ake amfani da su wajen magance wasu cututtuka ban da tarin fuka tare da samun kamfanoni da dama masu samar da su, wato linezolid da moxifloxacin, kowannensu na kashe kusan Dalar Amurka $5 a kowane wata.

Ko da yake bambancin da ke tsakanin farashin bedaquiline da pretomanid da kuma farashin da masana suka yi hasashen kamfanonin da ke ƙera magungunan irin na asali za su iya samar da su ya ragu a baya-bayan nan, har yanzu akwai damar ƙara rage farashin.

A lokacin da aka fara fitar da pretomanid kasuwa, farashinsa ya kasance Dalar Amurka $364 domin cikakken tsarin magani na watanni shida. Daga baya, yarjejeniyar tabbatar da sayen wani adadi na maganin (volume guarantee) ta rage farashinsa da kashi 34 cikin 100 zuwa Dalar Amurka $240. Kungiyar TB Alliance mai zaman kanta wadda ke haɓaka sabbin magunguna (non-profit product development partnership) ce ta ɗauki nauyin haɓaka pretomanid, kuma duk kuɗaɗen aikin sun fito ne daga gwamnatoci da ƙungiyoyin agaji masu bayar da tallafi. Ko da yake akwai kamfanoni da dama da ke ƙera magungunan irin na asali waɗanda suka samu lasisi daga TB Alliance domin ƙera da sayar da pretomanid, har yanzu farashin maganin yana da tsada, inda yake zama fiye da rabin (kashi 56 cikin 100) na jimillar kuɗin tsarin magani na BPaL(M). Ana sa ran wannan yanayi zai canza yayin da sauran kamfanonin da ke ƙera magungunan irin na asali da aka jera a Jadawali na 3 suka fara samar da maganin a kasuwa, tare da ƙaruwa a yawan buƙata yayin da ƙasashe da dama ke fara amfani da tsarin magani na BPaL(M).

Farashin delamanid ya daɗe yana da tsada matuƙa – har ma bayan kamfanin Otsuka ya bai wa kamfanonin da ke ƙera magungunan irin na asali lasisin son rai a shekarar 2017. Ɗaya daga cikin dalilan hakan shi ne cewa waɗannan kamfanoni sun dogara ne ga Otsuka wajen **samar musu da sinadarin magani na asali (API)** da ake buƙata domin ƙera delamanid. Ana sa ran cewa kammala canja fasahar ƙera delamanid daga Otsuka zuwa Viatris zai ba da damar shigar cikakkiyar sigar delamanid da kamfanin Viatris ya ƙera da kansa cikin kasuwa nan da ƙarshen shekarar 2023. Ana kuma sa ran farashin maganin zai ragu. Sai dai cikakkun bayanai game da yarjejeniyar da ke tsakanin Otsuka da Viatris ba a bayyana su ga jama'a ba. Wannan ya sa ake fargabar cewa watakila akwai wasu ƙuntatawa da aka ɗora wa Viatris, har ma bayan karewar babbar takardar haƙƙin mallakar delamanid ta Otsuka (Oktoba 2023), lamarin da ke rage hasashen samun ragin farashi mai yawa. Sauyin matsayin delamanid a cikin tsare-tsaren maganin cutar tarin fuka da ta riga ta bijire wa magunguna, tare da ƙaruwa a buƙata da yawan amfani da shi, da kuma shigar ƙarin kamfanonin da ke ƙera magungunan irin na asali cikin kasuwa, za su kasance muhimman abubuwan da za su taimaka wajen samun gagarumin ragin farashin delamanid. Karuwa a yawan buƙata da kuma gudanar da gasa wajen sayen magunguna za su kasance muhimman hanyoyin rage farashin pretomanid da delamanid.

Akwai wasu dalilai da dama, baya ga matsalolin da suka shafi **haƙƙin mallakar fasaha** da farashi, waɗanda ke shafar samun magani ga masu fama da cutar tarin fuka da ta riga ta bijire wa magunguna. Waɗannan sun haɗa da ko an fassara sabbin ka'idojin WHO zuwa cikin ƙa'idojin ƙasa; ko an haɗa sabbin magunguna da tsare-tsaren magani cikin tsare-tsaren dabarun ƙasa da shawarwarin neman kuɗaɗen tallafi; da kuma ko akwai wasu ƙuntatawar da hukumomin ƙasa suka kafa, musamman ga sabbin nau'ikan magungunan irin na asali waɗanda Hukumar Global Fund Expert Review Panel ko Shirin WHO na Tabbatar da Inganci (WHO Prequalification Programme) suka **tabbatar da ingancinsu** amma har yanzu ba a yi musu rajista da hukumomin ƙasa masu kula da magunguna ba. Sauran muhimman matsalolin da suka fi shafar al'ummomin ƙasashen da suka fara amfani da kuɗaɗensu wajen sayen magunguna sun haɗa da ƙarewar magunguna a ma'ajiya sakamakon gazawar tsarin sayen magunguna na ƙasa ko kuma rashin iya isar da magunguna a kan lokaci daga masu samar da su. Haka kuma akwai amfani da magungunan da ba su dace da masu amfani ba, (misali amfani da ƙwaya ɗaya-ɗaya maimakon haɗaɗɗun ƙwayoyin magani ko amfani da nau'in maganin manya da aka yi wa kwaskwarima ga yara maimakon amfani da nau'in maganin da aka ƙera musamman domin yara, da sauransu) ko kuma amfani da magungunan da ba a san ingancinsu ba. Bugu da ƙari, samun damar yin gwajin tantance cutar tarin fuka, gano cutar, da kuma gwajin DST yana da matuƙar muhimmanci. Idan babu waɗannan, ba za a iya gano masu ɗauke da cutar ba, ko haɗa su da cibiyoyin ba da magani, ko kuma sanya su kan tsarin maganin da ya dace. Domin samun cikakken bayani game da matsalolin da suka shafi samun magungunan cutar tarin fuka, a duba rahoton Médecins Sans Frontières *DR-TB Drugs Under the Microscope*.[35]

SINADARIN MAGANI NA ASALI (API) shi ne sinadarin da ke cikin magani wanda yake haifar da tasirin maganin a jikin mara lafiya.

HAKKIN MALLAKAR FASAHA shi ne haƙƙin mallaka da doka ta tanada kan sabbin ƙirƙire-ƙirƙire ilimi, da sauran kayayyakin fasaha, wanda ke ba kamfanoni ko wasu mutane ikon mallakarsu.

Magunguna **DA AKA TABBATAR DA INGANCINSU** su ne magungunan da wata hukuma mai ƙaƙƙarfan tsarin tantance magunguna misali, (Hukumar Kula da Abinci da Magunguna (FDA), Hukumar Kula da Magunguna ta Tarayyar Turai (EMA)), ko Shirin WHO na Tabbatar da Ingancin Magunguna, ko kuma Kwamitin Masana na Global Fund, ERP) suka tantance kuma suka tabbatar da ingancinsu.

CIKAKKUN SHIRYE-SHIRYEN KULA DA MARASA LAFIYA MASU MAYAR DA HANKALI GA BUKATUN MARA LAFIYA

Haɗa tallafin kula da marasa lafiya a matsayin wani muhimmin ɓangare na aiwatar da gajerun tsare-tsaren magani yana da matuƙar muhimmanci. Ya wajaba shirye-shiryen tallafin kula da marasa lafiya su ƙunshi matakai da ayyuka iri-iri da aka tsara bisa ga buƙatun kowane mara lafiya domin taimaka musu su ci gaba da bin tsarin magani, su ci gaba da kasancewa cikin kulawar lafiya, da kuma samun Sakamakon Magani Mai Gamsarwa. Ya wajaba waɗannan shirye-shiryen tallafi su mayar da hankali kan abubuwan da suka fi jawo wa masu fama da cutar tarin fuka da iyalansu ƙalubale, kamar nuna ƙyama da wariya, rashin tabbas ta fuskar tattalin arziki da muhalli, da kuma ingantaccen abinci mai gina jiki. Ya wajaba a ba da wannan tallafi ta hanyar tsare-tsaren kula da marasa lafiya da aka tsara gwargwadon buƙatunsu, ko dai ta hanyar ganawa da su kai tsaye a cikin al'umma ko kuma ta hanyar amfani da fasahohin kiwon lafiya na zamani.

Fasahohin zamani da ake amfani da su wajen sa ido kan bin tsarin magani (DATs), kamar akwatunan ƙwayoyin magani masu basira ko tsarin magani da ake tallafawa ta hanyar bidiyo, an tsara su ne domin sa ido kan yadda marasa lafiya ke bin tsarin magani tare da taimaka musu su ci gaba da bin sa.[36] Bayanan da ake tattarawa ta hanyar waɗannan fasahohi na DATs za su iya taimakawa wajen gano mutanen da ke buƙatar ƙarin tallafi domin su kammala tsarin maganinsu. Ya kamata fasahohin DATs su kasance wani ɓangare ne na cikakkun shirye-shiryen kula da marasa lafiya masu mayar da hankali ga buƙatun mara lafiya da Shirin Kasa na Yaki da Cutar Tarin Fuka ke samarwa. Sauran abubuwan da ya kamata waɗannan shirye-shiryen su ƙunsa sun haɗa da yaƙin neman wayar da kan al'umma, musamman domin rage nuna ƙyama da wariya;[37] tallafin lafiyar kwakwalwa da zamantakewa; wayar da marasa lafiya kan magani da ba su shawarwari da tallafin bin tsarin magani ta hannun ma'aikatan lafiya na al'umma ko takwarorinsu; ba da magani cikin lokaci da kuma yadda ya kamata ga illolin magunguna; bai wa marasa lafiya damar shiga cikin yanke shawara game da kulawar lafiyarsu; da kuma tallafin kuɗi ta hanyar samar da abinci, matsuguni, kuɗin sufuri, ko shirye-shiryen inshorar jin daɗin al'umma.[38]

V. ƊAUKI MATAKI

Akwai matakai da dama da masu rajin kare haƙkin marasa lafiya za su iya ɗauka domin shawo kan ƙalubalen da aka tattauna a sassan da suka gabata da kuma inganta samun damar amfani da gajerun tsare-tsaren maganin cutar tarin fuka cikin adalci ga kowa.

1. **Ku yaɗa sakamakon gwaje-gwajen binciken ga al'ummominku.** Ku sauƙaƙa bayanan da ke cikin wannan takarda domin su kasance masu sauƙin fahimta ga al'umma. Ku fassara waɗannan bayanai zuwa harsunan gida, sannan ku tabbatar da sun isa ga ƙungiyoyin fararen hula da ƙungiyoyin al'umma da kuke aiki da su. Ku nemi damar wayar da kan jama'a game da gajerun tsare-tsaren magani a tarukan al'umma. Ku tattara tambayoyin da membobin ƙungiyoyinku suka yi waɗanda ba a amsa a cikin wannan takarda ba, sannan ku tura su ga TAG (domin su taimaka wajen samar da bayanan da kuke buƙata).

2. **Ku yi kira da a sabunta ka'idojin ƙasa da kuma fara aiwatar da su.** Ku tuntuɓi jami'anku na Shirin Kasa na Yaki da Cutar Tarin Fuka domin sanar da su sakamakon gwaje-gwajen TB-PRACTECAL da ZeNix-TB da kuma sabbin sauye-sauyen da WHO ta yi a ka'idojin magani. Ku tambayi jami'an shirin na ƙasa lokacin da suke shirin sabunta ka'idojinsu da kuma fara amfani da tsare-tsaren magani na watanni shida. Ku ƙarfafa shirin na ƙasa ya ɗauki matakai cikin gaggawa tare da tsara aiwatar da su cikin hangen nesa mai faɗi. Ku yi hasashen ƙalubalen da za su iya tasowa wajen sabunta da aiwatar da ka'idoji a matakin ƙasa da na jihohi ko ƙananan hukumomi, sannan ku gano abokan haɗin gwiwa da dabarun shawo kansu.

3. **Ku yi kira ga masu ɗaukar nauyin bincike su cike giɓin bayanan da ake buƙata domin kowa ya amfana da gajerun tsare-tsaren magani.** Misali, har yanzu ana buƙatar ƙarin aiwatar da bincike domin tantance adadin ƙwayar pretomanid da ya dace da kuma amincinsa ga yara da mata masu ciki.

4. **Ku yi kira da a rage farashin magunguna da kayan gwaje-gwajen gano cuta.** Sabbin magungunan cutar tarin fuka ne ke ƙara tsadar tsare-tsaren magani, yayin da kayan gwaje-gwajen gano cuta na ƙwayoyin halitta har yanzu suke da tsada sosai ta yadda ba za a iya amfani da su a faɗin da ake buƙata domin kawo ƙarshen cutar tarin fuka ba. Ya kamata masu rajin kare haƙkin marasa lafiya su ɗora alhakin ɗaukar matakan da suka dace a kan masu ɗaukar nauyin haɓaka magunguna da kayan gwaje-gwajen gano cuta, da kamfanonin da ke ƙera su, da masu ba da tallafi da ayyukan da suka tallafa wajen ƙaddamarwa da faɗaɗa amfani da waɗannan kayayyaki, da kuma gwamnatocin ƙasashe, domin tabbatar da cewa an faɗaɗa kuma an samar da daidaitacciyar damar samun muhimman magunguna da kayan gwaje-gwajen gano cutar tarin fuka ga kowa a duniya.

5. **Ku yi kira ga gwamnatocin ƙasashe da hukumomin samar da kuɗaɗen tallafi su ware ƙarin kuɗaɗe** domin faɗaɗa ayyukan tantancewa da gano cutar tarin fuka, tare da tallafa wa aiwatar da tsarin magani na watanni shida a faɗin ƙasa a matsayin wani ɓangare na cikakkun shirye-shiryen kula da marasa lafiya masu mayar da hankali ga buƙatun mara lafiya. Za a buƙaci ƙarin kuɗaɗen tallafi domin samar da damar yin gwajin DST na ƙwayoyin halitta masu saurin bayar da sakamako, da kuma tallafa wa sabunta ka'idoji, horas da ma'aikata, da sauran ayyukan da suka shafi ƙaddamar da sabbin hanyoyin magani da kulawa a cikin shirye-shiryen yaki da cutar tarin fuka.

GANGAMIN DALAR AMURKA $5

Gangamin rage farashin gwajin tarin fuka zuwa Dalar Amurka $5 wata fafutuka ce da ke kira ga kamfanin kayan gwaje-gwaje na Cepheid da babban kamfaninsa, Danaher, da su rage farashin kananan katunan gwajin GeneXpert zuwa Dalar Amurka $5. Bisa ga wani bincike mai zaman kansa kan kuɗin kera kaya (COGS), Cepheid na kashe kasa da Dalar Amurka $5 wajen kera kananan katunan gwajin GeneXpert guda ɗaya.[39] Sai dai, tsawon shekara goma Cepheid ya rika sayar wa kasashe masu karancin kuɗi da masu matsakaicin kuɗi katirijin gwajin cutar tarin fuka da na tantance ko kwayar cutar ta bijire wa tasirin rifampicin a farashin Dalar Amurka $10 kan kowanne gwaji (wato ribar akalla kashi 100 cikin 100), sannan yana sayar da gwajin tantance ko kwayar cutar ta bijire wa tasirin isoniazid da fluoroquinolones a Dalar Amurka $15 kan kowanne gwaji (wato ribar akalla kashi 200 cikin 100). Wannan tsadar farashi ta sa ya zama da wahala a aiwatar da gwaje-gwajen kwayoyin halitta masu saurin bayar da sakamako a faɗin da ake bukata domin isa ga duk mutanen da ke bukatar su. Buɗaɗɗun wasikun da aka aika wa Cepheid da sauran kayan yakin neman sauyi, ciki har da wani bincike kan jarin gwamnati da aka zuba wajen haɓaka fasahohin gwajin kwayoyin halitta na GeneXpert, ana samun su a nan: https://www.msfaccess.org/time-for-5.

Bayan matsin lamba mai karfi daga al'ummomin da cutar tarin fuka ta shafa da kuma kungiyoyin fararen hula, an rage farashin gwajin Cepheid na cutar tarin fuka da tantance ko kwayar cutar ta bijire wa tasirin rifampicin daga Dalar Amurka $10 zuwa $8.[40] Wannan ragin farashi na kashi 20 cikin 100 babban ci gaba ne da zai taimaka wajen kara samun damar yin gwajin. Sai dai wannan ragin farashi bai kai matakin da al'ummomin da cutar ta shafa da kungiyoyin fararen hula suke nema ba, wato a rage farashin gwajin tarin fuka zuwa Dalar Amurka $5. Haka kuma, bai shafi gwajin Cepheid domin tantance ko kwayar cutar ta bijire wa tasirin isoniazid da fluoroquinolones ba, (waɗanda ake bukata domin faɗaɗa amfani da gajerun tsare-tsaren magani na cutar tarin fuka mai saurin amsa magani da kuma wadda ta riga ta bijire wa magunguna). Bai kuma shafi gwaje-gwajen sauran cututtuka ba. Rage farashin gwaje-gwajen cutar tarin fuka da kawo karshen mamayar kasuwar kayan gwajin tarin fuka da Cepheid ya yi na tsawon shekara goma ta hanyar samar da gasa da kuma shigar sabbin gwaje-gwajen kwayoyin halitta masu saurin bayar da sakamako cikin kasuwa, za su kasance muhimman matakai wajen faɗaɗa damar yin gwajin da gano cutar tarin fuka a faɗin da ake bukata domin kawo karshen cutar.

VI. SHAWO KAN KALUBALEN DA KE HANA AIWATAR DA GAJERUN TSARE-TSAREN MAGANI

Masu rajin kare haƙkin marasa lafiya za su yi ta jin dalilai daban-daban da ake bayarwa na kin aiwatar da gajerun tsare-tsaren maganin da WHO ta ba da shawarar amfani da su. A kasa akwai wasu daga cikin irin waɗannan dalilai da ake sa ran za a bayar, tare da hujjoji da bayanan da masu rajin kare haƙkin marasa lafiya za su iya amfani da su wajen mayar da martani.

KORAFI: Ba mu da damar yin gwajin tantance ko kwayar cutar ta bijire wa tasirin fluoroquinolones mai saurin bayar da sakamako.

MARTANI: Rashin samun damar yin gwajin tantance ko kwayar cutar ta bijire wa tasirin fluoroquinolones mai saurin bayar da sakamako bai kamata ya jinkirta fara amfani da tsarin magani na BPaLM ba. Kuna iya fara magani da BPaLM, sannan idan sakamakon gwajin ya fito, a yi amfani da shi wajen tantance ko ya kamata a ci gaba da amfani da moxifloxacin ko kuma a cire shi daga cikin tsarin maganin. Ta fuskar gudanar da ayyuka, samar da magunguna, da kuma saukaka wa marasa lafiya da ma'aikatan lafiya aiki, sauyawa daga BPaLM zuwa BPaL idan aka gano cewa kwayar cutar ta bijire wa tasirin fluoroquinolones ya fi sauki fiye da sauyawa daga tsarin magani na watanni 9 zuwa 11 zuwa BPaL ko kuma tsarin magani na watanni 18 zuwa 20 da ake tsara wa kowane mara lafiya gwargwadon yanayinsa.

KORAFI: Magungunan da ke cikin tsarin magani na watanni shida suna da tsada sosai.

MARTANI: Sabbin gajerun tsare-tsaren magani sun fi tsofaffin tsare-tsaren magani masu tsawon lokaci araha. Abin da ba za mu iya ɗaukar nauyinsa ba shi ne tsadar da ke tattare da amfani da tsare-tsaren magani marasa inganci wajen kula da cutar tarin fuka da ta riga ta bijire wa magunguna. Waɗannan sun haɗa da tsawaitar rashin lafiya, da tsawon lokacin da mara lafiya zai yi ba ya aiki wanda ke haifar da asarar kuɗin shiga da tabarbarewar tattalin arziki, ci gaba da ƙwayar cutar ke yi wajen bijire wa tasirin magunguna tare da yaɗuwarta, da kuma ƙaruwa a haɗarin nakasa ta dindindin ko mutuwa. Karuwa a yawan buƙata da yawan samar da magunguna zai taimaka wajen rage kuɗin ƙera su, wanda hakan zai iya ƙara rage farashinsu. Haka kuma, gwamnatoci na iya tattaunawa kai tsaye da kamfanonin magunguna domin rage farashi. Baya ga haka, suna da wasu hanyoyin doka da za su iya amfani da su wajen tabbatar da samun muhimman magungunan da farashinsu ya yi tsada ko kuma ba sa samuwa (misali, lasisin tilas), musamman idan aka yi la'akari da irin yawan kuɗaɗen jama'a da aka zuba wajen bincike, haɓakawa da kuma samar da waɗannan magunguna da tsare-tsaren magani.

KORAFI: Linezolid da tsarin magani na BPaL(M) suna da illa sosai ko kuma marasa lafiya ba sa iya jure su.

MARTANI: Gaba ɗaya, illolin tsarin magani na BPaL(M) sun fi ƙasa da waɗanda ake samu a sauran tsare-tsaren maganin da WHO ta ba da shawarar amfani da su wajen maganin cutar tarin fuka da ta riga ta bijire wa magunguna. Rage adadin linezolid daga 1,200 mg zuwa 600 mg a kullum ya ƙara sauƙaƙa jure tsarin magani na BPaL(M) ba tare da rage ingancinsa ba. A gwajin ZeNix, daga cikin mahalartan da suka karɓi 600 mg na linezolid a kullum na tsawon watanni shida, kashi 90 cikin 100 sun samu Sakamakon Magani Mai Gamsarwa. Bugu da ƙari, a gwajin ZeNix, lokacin da aka ba da 600 mg na linezolid a kullum, mahalarta kashi 13 cikin 100 ne kawai suka buƙaci a rage adadin maganin ko dakatar da shi na ɗan lokaci. Wannan ya bambanta da gwajin Nix-TB, inda kashi 85 cikin 100 na mahalartan da suka karɓi 1,200 mg na linezolid a kullum suka buƙaci irin waɗannan sauye-sauye. A gwajin TB-PRACTECAL, tun daga mako na 16 na magani, an rage adadin linezolid daga 600 mg zuwa 300 mg kamar yadda tsarin binciken ya tanada. Da wannan hanya, kashi 1.1 cikin 100 ne kawai na mahalarta suka buƙaci dakatar da amfani da linezolid na ɗan lokaci.[41] Likitoci sun bayyana cewa ana iya shawo kan illolin linezolid idan ana gudanar da gwaje-gwajen sa ido da suka dace domin gano illolin magunguna da wuri. An danganta pretomanid da illa ga hanta lokacin da aka yi nazarinsa tare da pyrazinamide wajen maganin cutar tarin fuka mai saurin amsa magani.[42] Sai dai pyrazinamide ba ya cikin tsarin magani na BPaL(M), saboda haka wannan ba ya zama abin damuwa. A gwajin TB-PRACTECAL, yawan masu fama da illa ga hanta a tsarin magani na BPaLM bai bambanta da wanda aka samu a tsare-tsaren magani na rukunin kwatanci ba (kashi 4 cikin 100 idan aka kwatanta da kashi 11 cikin 100). Ana sa ran cikin watanni masu zuwa za a fitar da sakamakon binciken da aka gudanar kan sinadaran haihuwa na maza da kuma maniyyinsu domin tantance ko illolin pretomanid ga haihuwa da aka gani a beraye suna faruwa a ɗan Adam.

KORAFI: Ana buƙatar hujjojin bincike daga ƙasarmu kafin a faɗaɗa amfani da sabbin tsare-tsaren magani.

MARTANI: Yawancin gwaje-gwajen asibiti da binciken lura da marasa lafiya kan haɗa mahalarta daga cibiyoyi daban-daban a ƙasashe da dama. Ana yin haka ne domin tabbatar da cewa mahalartan binciken sun wakilci al'ummomi daban-daban, kuma sakamakon binciken zai kasance mai amfani ga al'ummomi, yankuna da kuma yanayin kiwon lafiya iri-iri. Shirye-shiryen yaƙi da cutar tarin fuka na ƙasashe na iya gudanar da binciken aiwatarwa (operational research) domin su ƙara fahimtar yadda za a fi aiwatar da sabbin tsare-tsaren magani cikin nasara a yanayinsu sai dai ba lallai ba ne a gudanar da gwaje-gwajen asibiti a cikin ƙasa domin tabbatar da inganci da amincin tsare-tsaren maganin da WHO ta ba da shawarar amfani da su, kuma yin hakan na iya jinkirta samun damar amfani da ingantattun tsare-tsaren magani. An tsara ƙa'idojin WHO ne domin a yi amfani da su a faɗin duniya.

KORAFI: Ya kamata a "kare" sabbin magungunan cutar tarin fuka.

MARTANI: Tilas ne likitoci da shirye-shiryen yaƙi da cutar tarin fuka su fi mayar da hankali kan kare lafiyar marasa lafiyar da suke yi wa hidima. Hunkurin "kare sabbin magunguna" na iya haifar da akasin abin da ake so, domin yana hana mutane haƙƙinsu na samun lafiya da kuma cin moriyar ci gaban kimiyya. Hanya mafi dacewa ta kare sabbin magunguna ita ce tabbatar da cewa ana amfani da su a cikin tsare-tsaren magani da aka inganta, tare da tabbatar da cewa marasa lafiya suna samun magungunan da aka tabbatar da ingancinsu ba tare da katsewa ba, sannan kuma suna samun isasshen tallafin da zai taimaka musu su kammala tsarin maganinsu. Tauye haƙƙin ɗan Adam ne a ajiye magunguna domin marasa lafiya na gaba, alhali ana iya amfani da su a yau wajen inganta sakamakon magani ga masu fama da cutar tarin fuka da ta riga ta bijire wa magunguna.

KUNA BUKATAR KARIN BAYANI?
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MANAZARTA

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