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The Market Share

A MARKET DYNAMICS SPOTLIGHT ON GLOBAL HEALTH NEWS

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HIV/AIDS

ARVs – the next generation: going boldly together to new frontiers of HIV treatment

From a *Global Health Science & Practice* editorial: "New ARVs, particularly the potentially 'game-changing' ARV dolutegravir, offer major potential to meet the compelling need for simpler and better HIV treatment for tens of millions of people in the coming decade. Advantages include substantially lower manufacturing cost, fewer side effects, and less risk of resistance. But key obstacles must be addressed in order to develop and introduce new ARVs in specific combinations optimized for the needs of low- and middle-income countries. Strong leadership will be essential from the global health community to nurture more focused collaboration between the private and public sectors." The article looks in detail at dolutegravir as well as possible new drug combinations; advantages and barriers to reducing to just two ARVS at a time; improved 2nd line combinations with dolutegravir; and long-acting injectable ARVs. The authors write: "Activists, researchers, U.N. agencies, the Global Fund, government funding and regulatory agencies, foundations, governments of highly-affected countries, pharmaceutical companies, UNITAID, CHAI, and the MPP have successfully taken action together to enable access to better ARV regimens and to build consensus on what new ARVs should be highest priority. Now is the time to push the envelope even further … More focused collaboration and concrete steps are needed for [the] technical potential to be fully realized in the rapid timeframe that is required. And the free market penchant toward proprietary products must be balanced by the compelling need to come together to make this next generation of better ARVs available soon where they are needed most." *Barnhart M, Shelton JD. Glob Health Sci & Pract. Advance e-pub 27 Jan 2015.* ■

Reliable and accurate CD4+ T cell count and percent by the portable flow cytometer CyFlow MiniPOC and "CD4 Easy Count Kit-Dry", as revealed by comparison with the gold standard dual platform technology

PLoS ONE reports: "An accurate and affordable CD4+ T cells count is an essential tool in the fight against HIV/AIDS. Flow cytometry (FCM) is the 'gold standard' for counting such cells, but this technique is expensive and requires sophisticated equipment, temperature-sensitive monoclonal antibodies (mAbs) and trained personnel. The lack of access to technical support and quality assurance programs thus limits the use of FCM in resource-constrained countries. We have tested the accuracy, the precision and the carry-over contamination of Partec CyFlow MiniPOC, a portable and economically affordable flow cytometer designed for CD4+ count and percentage, used along with the 'CD4% Count Kit-Dry'. Venous blood from 59 adult HIV+ patients was collected and stained with the 'MiniPOC CD4% Count Kit-Dry'. CD4+ count and percentage were then determined in triplicate by the CyFlow MiniPOC. In parallel, CD4 count was performed using mAbs and a CyFlow Counter, or by a dual platform system (from Beckman Coulter) … **Conclusion:** The cost-effective CyFlow MiniPOC produces rapid, reliable and accurate results that are fully comparable with those from highly expensive dual platform systems." *Nasi M, De Biasi S, Bianchini E et al. PLoS ONE. 26 Jan 2015;10(1):e0116848.* ■

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Low dose versus high dose stavudine for treating people with *HIV* infection

From the Cochrane Library: "Stavudine remains a component of combination ART in resource-constrained countries due to its relatively low cost despite the WHO recommendation for its phasing out … Where stavudine is still in use, it is recommended at a dose lower than the standard dose in order to reduce stavudine related toxicity." The authors of this review "identified randomised controlled trials that compared the use of low dose versus high dose stavudine. The last search was conducted in February 2014 and the searches covered the period 1996 to 2014 … **Authors' Conclusions:** This systematic review identified only three small trials that evaluated virologic efficacy and safety of high dose versus low dose stavudine. All three trials were conducted in developed countries and none reported from developing countries, yet stavudine remains a component of ART combination therapy in many developing countries. It was not possible to perform a meta-analysis on these trails. Individual results from the trials were imprecise and have not identified a clear advantage in virologic efficacy or safety between low and high dose stavudine. Furthermore, enrolled participants were treatment experienced with sustained virologic suppression and so existing data cannot be generalized to settings where stavudine is currently used in ART naive patients with high viral loads. Stavudine dose reduction trials in ART naive patients, in developing countries where stavudine is still being used are warranted as the phasing out of stavudine that is recommended by WHO may not be immediately universally feasible." *Magula N, Dedicoat M. Cochrane Database Syst Rev. Advance e-pub 28 Jan 2015.* ■

Estimation of mortality among HIV-infected people on antiretroviral treatment in east Africa: a sampling based approach in an observational, multisite, cohort study

From *Lancet HIV:* "We aimed to provide a better understanding of mortality at scale and, by extension, the effectiveness and comparative effectiveness of public health ART treatment in east Africa. In 14 clinics in five settings in Kenya, Uganda, and Tanzania, we intensively traced a sample of patients randomly selected using a random number generator, who were infected with HIV and on ART and who were lost to follow-up … **Findings:** We followed 34 277 adults on ART from Mbarara and Kampala in Uganda, Eldoret, and Kisumu in Kenya, and Morogoro in Tanzania. The median age was 35 years, 11 628 (34%) were men, and median CD4 count count before therapy was 154 cells per µL. 5780 patients (17%) were lost to follow-up, 991 (17%) were selected for tracing between June 10, 2011, and Aug 27, 2012, and vital status was ascertained for 860 (87%). With incorporation of outcomes from the patients lost to follow-up, estimated 3 year mortality increased from 3·9% to 12·5%. The sample-corrected, unadjusted 3 year mortality across settings was lowest in Mbarara (7·2%) and highest in Morogoro (23·6%) … **Interpretation:** A sampling-based approach is widely feasible and important to an understanding of mortality after initiation of ART. After adjustment for measured biological drivers, mortality differs substantially across settings despite delivery of a similar clinical package of treatment. Implementation research to understand the systems, community, and patients' behaviours driving these differences is urgently needed." *Geng EH, Odeny TA, Lyamuya RE et al. Lancet HIV. Advance e-pub 27 Jan 2015.* ■

HIV and the Millennium Development Goals

Prendergast and colleagues write: "MDG 6 has two HIV/AIDS commitments: to have halted and begun to reverse the spread of HIV/AIDS by 2015 and to ensure access to treatment among all those in need by 2010. Given the almost universal lack of access to HIV testing, prevention and treatment for children in high prevalence countries in 2000, the achievements of the past 15 years have been extraordinary, fuelled by massive donor investment, strong political commitment and ambitious global targets; however, MDG 6 is some way from being attained. Prevention of mother-to-child transmission (PMTCT) services have expanded enormously, with new infections among children falling by 58% between 2002 and 2013. There has been a shift towards initiation of lifelong ART for pregnant and breastfeeding women, although low HIV testing rates in pregnancy, suboptimal PMTCT coverage and poor retention in care remain barriers to achieving HIV elimination among children. Early infant diagnosis has expanded substantially but, in 2013, only 44% of all HIV-exposed infants were tested before 2 months of age. Diagnosis of HIV, therefore, frequently occurs late, leading to delays in ART initiation. By the end of 2013, approximately 760 000 children were receiving ART, leading to 40% decline in AIDS-related mortality. However, only 24% of HIV-infected children were receiving ART, compared with 36% of adults … In this review, we summarise progress and remaining challenges in reaching MDG 6 and discuss future strategies to achieve the ambitious goals of paediatric HIV elimination and universal access to treatment." *Prendergast AJ, Essajee S, Penazzato M. Arch Dis Child. Feb 2015;100 Suppl 1:S48-52.* ■

TUBERCULOSIS

Phase 2a published results show the potential of a new TB regimen with novel drugs bedaquiline and pretomanid (PA-824)

TB Alliance reports that "a promising new TB drug regimen, which could improve the treatment of drug sensitive TB and multi-drug resistant (MDR-) TB, was identified in a clinical trial assessing combinations of new and existing antibiotic drugs, according to research published [last week]. Based on the published results of the Phase 2a two-week trial and earlier studies, the BPaZ combination—comprising bedaquiline, a drug that is provisionally approved to treat MDR-TB; pretomanid (formerly PA-824), which is being tested in multiple clinical trials; and pyrazinamide, part of today's first-line treatment—has been advanced to a two-month Phase 2b clinical trial, called NC-005, which began in 2014. 'This clinical trial shows the importance of testing combinations including new TB drugs, whether already approved or not, to determine the most effective regimens,' said Mel Spigelman, MD, President and CEO of TB Alliance, the sponsor of the study. 'With limited resources for TB research, we need to ensure that we advance only the most promising potential new treatment regimens that will maximize the public health impact.' The 14-day phase 2a trial, called NC-003, took place in two locations in the Cape Town area of South Africa and "had seven treatment arms, out of which the BPaZ combination emerged as the most effective for a potential new TB treatment regimen. Specifically, the BPaZ regimen killed more than 99% of TB bacteria in patient's sputum in two weeks, and appeared well tolerated and safe." *TB Alliance. 29 Jan 2015. http://tballiance.org/newscenter/view-brief.php?id=1114* See: **Bactericidal activity of pyrazinamide and clofazimine alone and in combinations with pretomanid and bedaquiline.** *Diacon AH, Dawson R, von Groote-Bidlingmaier F et al. Am J Respir Crit Care Med. Advance e-pub 26 Jan 2015.* ■

Early phase evaluation of SQ109 alone and in combination with rifampicin in pulmonary TB patients

"SQ109, an asymmetrical diamine, is a novel anti-TB drug candidate," write Heinrich *et al*. "This first study in patients was done to determine safety, tolerability, pharmacokinetics and bacteriological effect of different doses of SQ109 alone and in combination with rifampicin when administered over 14 days. Smear-positive pulmonary TB patients were randomized into six groups of 15 to receive once-daily oral treatment with 75, 150 or 300 mg of SQ109, rifampicin (10 mg/kg body weight), rifampicin plus 150 mg of SQ109, or rifampicin plus 300 mg of SQ109 for 14 days. Patients were hospitalized for supervised treatment, regular clinical, biochemical and electrocardiographic safety assessments, pharmacokinetic profiling and daily overnight sputum collection. **Results:** SQ109 was safe and generally well tolerated. Mild to moderate dose-dependent gastrointestinal complaints were the most frequent adverse events. No relevant QT prolongation was noted. Maximum SQ109 plasma concentrations were lower than MICs. Exposure to SQ109 (AUC_{0-24}) increased by drug accumulation upon repeated administration in the SQ109 monotherapy groups. Co-administration of SQ109 150 mg with rifampicin resulted in decreasing SQ109 exposures from day 1 to day 14. A higher (300 mg) dose of SQ109 largely outweighed the evolving inductive effect of rifampicin … **Conclusions:** SQ109 alone or with rifampicin was safe over 14 days. Upon co-administration with rifampicin, 300 mg of SQ109 yielded a higher exposure than the 150 mg dose. SQ109 did not appear to be active alone or to enhance the activity of rifampicin during the 14 days of treatment." *Heinrich N, Dawson R, du Bois J et al. J Antimicrob Chemother. Advance e-pub 27 Jan 2015.* ■

Immunofluorescence microtip sensor for point-of-care tuberculosis diagnosis

Methods in Molecular Biology has published two articles on new POC diagnostics for TB. In this first, "an immunofluorescence microtip sensor was developed for specific detection of Mycobacterium cells in sputum samples by the combination of electric field, streaming flow, and immuno-affinity binding. The detection limit was 200 CFU/mL in human sputum, which was comparable to PCR but without requiring bacteriological culture, centrifugation, or nucleic acid amplification. In spite of the complex nature of physical, chemical, and biological mechanisms, the simple operation of 'dipping and withdrawal' of tips will allow for screening by minimally trained personnel within 30 min. In addition, the minimal power requirement (5 W) combined with low assay cost is ideal for point-of-care screening in resource-limited settings." *Kim JH, Lee KH, Cangelosi GA, Chung JH. Methods Mol Biol. 2015;1256:57-69.* In the second

article, **Mobile based hold nano-probe TB diagnostics for point-of-need,** Vegas and colleagues write: "Gold nanoparticles have been widely used in molecular diagnostics platforms. Here, we describe the use of gold nano-probes (oligonucleotide functionalized gold nanoparticles) to be used in a non-cross-linking colorimetric method for the direct detection of specific DNA targets. Due to the remarkable optical properties of gold nanoparticles, this detection system provides colorimetric detection of the pathogen together with the potential of identification of several single nucleotide polymorphisms involved in TB resistance to antibiotics. For point-of-need use, we adapted this strategy to a low-cost mobile scheme using a paper based revelation platform and where the spectral signature is transposed to RGB data via a smartphone device. This way, identification of pathogen and characterization of resistance signatures is achieved at point-of-need." *Veigas B, Fortunato E, Baptista PV. Methods Mol Biol. 2015;1256:41-56.* ■

Optimizing the detection of recent tuberculosis infection in children in a high TB-HIV burden setting

"Young, malnourished, and HIV-infected children have significant risk of TB morbidity and mortality following TB infection. Treatment of TB is hindered by poor detection and limited pediatric data," write Mandalakas and colleagues. Their aim was to identify improved testing to detect pediatric TB infection with a "prospective community-based study assessing utility of the tuberculin skin test (TST) and interferon-gamma release assays (IGRAs) among children (N = 1343; 6 months to < 15 years) in TB-HIV high-burden settings … **Results:** Contact tracing detects TB in 8% of child contacts within 3-months of exposure. Among children with no documented contact, TST and Quantiferon-TB Gold In-Tube positivity was greater than T-SPOT.TB. Nearly 8% of children had IGRA positive and skin test negative discordance. In a model accounting for confounders, all tests correlate with TB contact but IGRAs correlate better than TST. Indeterminate IGRA results were not associated with age. Indeterminate Quantiferon-TB Gold In-Tube results were more frequent in HIV-infected (4.7%) than HIV-uninfected children (1.9%) while T-SPOT.TB indeterminates were rare (0.2%) and not affected by HIV-status. Conversion and reversion were not associated with HIV-status. Among HIV-infected children, tests correlated less with contact as malnutrition worsened. **Conclusions:** Where resources allow, use of interferon-gamma release assays should be considered in young, recently exposed, and HIV-infected children since they may offer advantages compared to the tuberculin skin test for identifying TB infection, and improve targeted, cost-effective delivery of preventive therapy. Affordable tests of infection could dramatically impact global TB control." *Mandalakas AM, Kirchner HL, Walzl G et al. Am J Respir Crit Care Med. Advance e-pub 26 Jan 2015.* ■

International partnership to create global TB data-sharing platform

From the Stop TB Partnership: "Recognizing an international need for a centralized, standardized data resource for globally diverse genomic and other clinically relevant TB data, the Critical Path to TB Drug Regimens (CPTR) initiative has begun development and implementation of a Rapid Drug Susceptibility Test (RDST) data-sharing platform in partnership with the Critical Path Institute (C-Path), FIND, the New Diagnostics Working Group (NDWG), WHO, and the U.S. CDC, and National Institute of Allergy and Infectious Diseases. Under CPTR's direction, data contributed from a variety of research, academic, and government bodies will be reviewed for quality in a transparent manner, standardized, and eventually made accessible to TB researchers and physicians. Once populated with sequence information and relevant patient data, the RDST platform will be used to validate drug resistance-associated mutations and increase an understanding of clinical treatment resistance patterns. This resultant living list of mutations will then aid in the development of new diagnostic assays that can rapidly identify drug-resistant TB strains and ensure the appropriate use of TB drugs and drug regimens. In this way, the platform will directly influence and even affect change in the standard of care for TB patients, while accelerating the development of personalized treatment regimens that take into account resistance trends in specific locations." *Stop TB Partnership. 26 Jan 2015.* ■

ECDC: Annual epidemiological report 2014: tuberculosis

TB Online reports that this European Centre for Disease Control report "provides a snapshot of the epidemiological situation of TB in Europe, featuring data from 2012. In 2012, 68423 cases of TB were reported in 29 EU/EEA countries, which was 6% less than in 2011, reflecting a decrease in 19 countries. The EU/EEA notification rate was 13.5 per 100 000 population. 80% of all notified TB cases were newly diagnosed and 70% of new pulmonary TB cases were culture-confirmed. 27% of all TB cases were of foreign origin, mostly residing in low-incidence countries. Adult age groups were equally affected by TB while the notification rate in chil-

dren under the age of 15 years was 3.6 per 100 0000, consistent with a slightly decreasing long-term trend. Males were over-represented in almost all EU/EEA Member States and in all adult age groups, with the greatest gender imbalance among those aged 45 to 64 years. MDR TB was reported for 5% of cases with drug susceptibility testing results (3% of new pulmonary TB cases and 19% of previously treated pulmonary cases) and continues to be most prevalent in the three Baltic countries. Extensively drug-resistant (XDR) TB was reported for 14% of 978 MDR TB cases tested for second-line drug susceptibility. 5% of TB cases with known HIV status were co-infected with the virus. In total, 75% of TB cases notified in 2011, 34% of MDR TB cases notified in 2010 and 25% of XDR TB cases notified in 2009 had successfully completed their treatment." *TB Online. 27 Jan 2015.* ■

MALARIA

Comparing the impact of artemisinin-based combination therapies on malaria transmission in Sub-Saharan Africa

Ndeffo-Mbah and colleagues write: "ACTs are currently considered the first-line treatments for uncomplicated *Plasmodium falciparum* malaria. Among these, artemether-lumefantrine (AL) has been the most widely prescribed ACT in sub-Saharan Africa. Recent clinical trials conducted in sub-Saharan Africa have shown that dihydroartemisinin-piperaquine (DP), a most recent ACT, may have a longer post-treatment prophylactic period and post-treatment infection period (duration of gametocyte carriage) than AL. Using epidemiological and clinical data on the efficacy of AL and DP, we developed and parameterized a mathematical transmission model that we used to compare the population-level impact of AL and DP for reducing *P. falciparum* malaria transmission in sub-Saharan Africa. Our results showed that DP is likely to more effectively reduce malaria incidence of clinical episodes than AL. However in low *P. falciparum* transmission areas, DP and AL are likely to be equally effective in reducing malaria prevalence. The predictions of our model were shown to be robust to the empirical uncertainty summarizing the epidemiological parameters. DP should be considered as a replacement for AL as first-line treatment of uncomplicated malaria in highly endemic *P. falciparum* communities. To optimize the effectiveness of ACTs, it is necessary to tailor treatment policies to the transmission intensity in different settings." *Ndeffo-Mbah ML, Parikh S, Galvani AP. Am J Trop Med Hyg. Advance e-pub 26 Jan 2015.* ■

Randomized non-inferiority and safety trial of dihydroartemisin-piperaquine (DHAP) and artesunate-amodiaquine (ASAQ) versus artemether-lumefantrine (AL) in the treatment of uncomplicated Plasmodium falciparum malaria in Cameroonian children

From *Malaria Journal:* "AL and ASAQ are first-line treatment for uncomplicated malaria in Cameroon. No study has yet compared the efficacy of these drugs following the WHO recommended 42-day follow-up period. The goal of this study was to compare the clinical efficacy, tolerability and safety of ASAQ, AL and DHAP among children aged less than ten years in two malaria-endemic ecological regions of Cameroon … **Conclusion:** Artesunate-amodiaquine and dihydroartemisin-piperaquin**e** are considered safe and tolerable and are not inferior to AL in the treatment of uncomplicated P. falciparum malaria in Cameroonian children." *Nji AM, Ali IM, Moyeh MN et al. Malaria J. 28 Jan 2015;14:27.* ■

Accuracy of two malaria rapid diagnostic tests (RDTS) for initial diagnosis and treatment monitoring in a high transmission setting in Uganda

Reported online by *American Journal of Tropical Medicine and Hygiene:* "Malaria RDTs may improve fever management in areas without microscopy. We compared the accuracy of histidine-rich protein 2 (HRP2) and *Plasmodium* lactate dehydrogenase (pLDH)-based RDTs, using expert microscopy as a gold standard, for initial diagnosis, treatment monitoring, and diagnosis of recurrent malaria in a cohort of children followed longitudinally in a high-transmission area in Uganda. For 305 initial fever episodes, sensitivity was 98% for HRP2 and 87% for pLDH, whereas specificity was 55% and 96%, respectively. The HRP2 gave 51% false-positive results on Day 28, whereas pLDH gave no false positives after Day 7. For 59 recurrent fever episodes during follow-up, sensitivity was 100% for HRP2 and 91% for pLDH, whereas specificity was 33% and 100%, respectively. The HRP2-based RDTs are useful for initial diagnosis of malaria caused by superior sensitivity; however,

as a result of superior specificity, pLDH-based RDTs are more appropriate to monitor treatment and diagnose recurrent malaria." *Mbabazi P, Hopkins H, Osilo E et al. Am J Trop Med Hyg. Advance e-pub 26 Jan 2015.* ■

Loop-mediated isothermal amplification (LAMP) for point-of-care detection of asymptomatic low-density malaria parasite carriers in Zanzibar

"Asymptomatic, low parasite density malaria infections are difficult to detect with currently available point-of-care diagnostics," write Cook *et al*. "This study piloted a LAMP kit for field-friendly, high-throughput detection of asymptomatic malaria infections during mass screening and treatment (MSAT) in Zanzibar, a malaria pre-elimination setting. Screening took place in three known hotspot areas prior to the short rains in November. Finger-prick blood was taken for screening by rapid diagnostic test (RDT) and LAMP and collected on filter paper for subsequent PCR analyses. LAMP results were compared to RDT and to PCR using McNemar's test. **Results:** Approximately 1,000 people were screened. RDT detected ten infections (1.0%) whilst both LAMP and PCR detected 18 (1.8%) infections. However, PCR identified three infections that LAMP did not detect and vice versa. LAMP testing was easy to scale-up in field conditions requiring minimal training and equipment, with results ready one to three hours after screening. **Conclusions:** Despite lower than expected prevalence, LAMP detected a higher number of infections than the currently used RDT. LAMP is a field-friendly, sensitive diagnostic test that could be useful for MSAT malaria campaigns which require quick results to enable prompt treatment." *Cook J, Schmidt BA, González IJ et al. Malaria J. 28 Jan 2015;14:43.* ■

Evaluation of non-instrumented nucleic acid amplification by loop-mediated isothermal amplification (NINA-LAMP) for the diagnosis of malaria in Northwest Ethiopia

This study in *Malaria Journal* "aimed to evaluate the performance of non-instrumented nucleic acid amplification loop-mediated isothermal amplification (NINA-LAMP) compared to standard thick and thin film microscopy and nested PCR as gold standard for the sensitive diagnosis of malaria in Northwest Ethiopia … The NINA-LAMP method was performed using the LoopampTM Malaria Pan/Pf detection kits for detecting DNA of the genus Plasmodium and more specifically Plasmodium falciparum using an electricity-free heater … **Results:** Using nested PCR as reference, the sensitivity and specificity of the primary NINA-LAMP assay [on 82 samples] were 96.8% and 84.3%, respectively for detection of Plasmodium genus, and 100% and 81.2%, respectively for detection of P. falciparum parasite. Microscopy demonstrated sensitivity and specificity of 93.6% and 98.0%, respectively for the detection of Plasmodium parasites. Post-hoc repeat NINA-LAMP analysis showed improvement in diagnostic accuracy, which was comparable to nested PCR performance and superior to microscopy for detection at both the Plasmodium genus level and P. falciparum parasites. **Conclusion:** NINA-LAMP is highly sensitive for the diagnosis of malaria and detection of Plasmodium parasite infection at both the genus and species level when compared to nested PCR. NINA-LAMP is more sensitive than microscopy for the detection of P. falciparum and differentiation from non-falciparum species and may be a critical diagnostic modality in efforts to eradicate malaria from areas of low endemicity." *Sema M, Alemu A, Bayih A et al. Malaria J. 28 Jan 2015;14:44.* ■

Molecular detection of human Plasmodium species in Sabah using PlasmoNex TM multiplex PCR and hydrolysis probes real-time PCR

This study "screened 207 suspected malaria samples from patients seeking treatment in clinics around Sabah state, Malaysia, using two panels of multiplex PCRs, conventional PCR system (PlasmoNexTM) and real-time PCR based on hydrolysis probe technology. Discordance results between two PCR assays were further confirmed by sequencing … **Results:** Of the 207 malaria samples, Plasmodium knowlesi (73.4% vs 72.0%) was the most prevalent species based on two PCR assays, followed by Plasmodium falciparum (15.9% vs 17.9%), and Plasmodium vivax (9.7% vs 7.7%), respectively. Neither Plasmodium malariae nor Plasmodium ovale was detected. Nine discrepant species identification based on both the PCR assays were further confirmed through DNA sequencing. Species-specific real-time PCR only accurately diagnosed 198 of 207 (95.7%) malaria samples up to species level in contrast to PlasmoNexTM assay which had 100% sensitivity and specificity based on sequencing results. **Conclusions:** Multiplex PCR accelerates the diagnosis of malaria. The PlasmoNexTM PCR assay seems to be more accurate than real-time PCR in the speciation of all five human malaria parasites. The present study also showed a significant increase of the potential fatal P. knowlesi infection in Sabah state as revealed

by molecular PCR assays." *Lee P, Chong E, Anderios F et al. Malaria J. 28 Jan 2015;14:*28. ■

A cohort study of the effectiveness of insecticide-treated bed nets to prevent malaria in an area of moderate pyrethroid resistance, Malawi

The objective of this investigation in *Malaria Journal* "was to assess the effectiveness of ITNs to prevent malaria in an area of Malawi with moderate pyrethroid resistance. One deltamethrin ITN was distributed in the study area for every two individuals in each household plus one extra ITN for households with an odd number of residents. A fixed cohort of 1,199 children aged 6 to 59 months was seen monthly for one year and at sick visits to measure malaria infection and use of ITNs. Insecticide resistance among malaria vectors was measured. The effect of ITN use on malaria incidence was assessed … **Results:** There were 1,909 infections with Plasmodium falciparum over 905 person-years at risk (PYAR), resulting in an observed incidence of 2.1 infections per person-year. ITNs were used during 97% of the PYAR … **Conclusion:** ITNs significantly reduced [by 30% compared to no bed nets] the incidence of malaria infection in children in an area with moderate levels of pyrethroid resistance and considerable malaria transmission. This is the first study to show that ITNs provide protection in areas where pyrethroid-resistant An. funestus is the major malaria vector. Malaria control programmes should continue to distribute and promote ITNs in areas with low to moderate pyrethroid resistance; however, insecticide resistance may intensify further and it is not known whether ITNs will remain effective at higher levels of resistance. There is an urgent need to identify or develop new insecticides and technologies to limit the vulnerability of ITNs to insecticide resistance." *Lindblade KA, Mwandama D, Mzilahowa Tet al. Malaria J. 28 Jan 2015;14:31*. ■

CROSS-CUTTING ISSUES

Falsified medicines in Africa

From a letter in *Lancet Global Health:* "The President's Malaria Initiative is working programmatically with the USAID Office of Inspector General to address and mitigate availability of counterfeit drugs in the market place. For example, in Benin, in a mostly unregulated market in which shop owners and street vendors sell drugs, including antimalarials, the Initiative is partnering with the USAID OIG, local law enforcement, and Ministry of Health officials to launch an anti-counterfeit outreach programme by educating and incentivising shopkeepers to report suspected counterfeit medicine networks, while informing consumers on the dangers of substandard drugs and how to recognise them. Benin is the first of several sub-Saharan African countries where this initiative will be implemented. And, the USAID OIG is actively investigating crimes, working with local law enforcement agencies in several countries, leading to arrests and prosecutions. In all 19 focus countries in Africa, the President's Malaria Initiative is partnering with national medicines regulatory authorities to help strengthen local capacities regarding drug quality as part of the US Government's overall technical assistance towards strengthening health systems." *Ziemer T. Lancet Glob Health. Feb 2015;3(2):e82.* ■

A new index measures impact pharma has on infectious diseases

From the *Wall Street Journal's* Pharmalot blog: "The Global Health Impact Index measures three factors: the need for several important drugs for three specific infectious diseases: TB, HIV/AIDS and malaria; the effectiveness of the available treatments; and the number of people who can access those drugs. The rankings estimate the amount of death and disability the drugs are alleviating … The index arrives as more pressure is being placed on drug makers to meet the needs of poor populations. In response, various companies have crafted deals with government agencies and public-private partnerships to bolster development, production and distribution. But while there may be sufficient data available to track the need for such medicines, there is currently no way to determine the extent to which drug makers and their products are having a desired effect, according to Nicole Hassoun … at Binghamton University, who developed the index. 'By better understanding the impacts of products on the burden of disease, the index gives researchers a tool for measuring impact, governments and donors can better target their efforts and companies can be incentivized to focus on impact,' she writes to us." *Silverman E. Pharmalot/WSJ. 23 Jan 2015.* ■

OF FURTHER INTEREST

U.S. Food and Drug Administration approves Bristol-Myers Squibb's Evotaz™ (atazanavir and cobicistat) for the treatment of HIV-1 infection in adults. Evotaz is coformulated to be one pill, once-daily. *BMS. 29 Jan 2015.*

PREZCOBIX™ (darunavir/cobicistat) approved in the U.S. for the treatment of adults living with HIV-1. *Janssen. 29 Jan 2015.*

Barriers and facilitators to combined ART initiation in pregnant women with HIV: lessons learnt from a PMTCT B+ pilot program in Swaziland. *JAIDS. Parker LA, Jobanputra K, Okello V et al. Advance e-pub 26 Jan 2015.*

One size does not fit all: HIV testing preferences differ among high-risk groups in Northern Tanzania. Study results expose systematic differences in HIV testing preferences across high-risk populations compared to their community peers. *Ostermann J, Njau B, Mtuy T et al. AIDS Care. Advance e-pub 23 Jan 2015:1-9.*

Primate studies raise hope of eventual quarterly injected PrEP. Researchers from two primate studies of cabotegravir reached conclusions that suggested that quarterly injected PrEP may one day become a reality for humans. *Aidsmeds. 27 Jan 2015.*

Gates predicts two miracles for AIDS relief by 2030. Improved treatment and the development of a vaccine are the "two miracles" needed to help turn the tide, he said. *Jan JC. Bloomberg News. 23 Jan 2015.*

Russia may face shortage of anti-AIDS drugs in 2015. *The Pharma Letter. 28 Jan 2015.*

With end to Global Fund support in Bosnia and Herzegovina, services targeting Roma minorities at risk of closure. *Zardiashvili T. Aidspan/GFO. 28 Jan 2015.*

India's tuberculosis officers call for action on "alarming" crisis. India's TB epidemic is "alarming" and requires the immediate attention of the government to bring it under control, the country's TB officers warned. *Bagcchi S. BMJ 26 Jan 2015;350:h449.*

Zimbabwe faces troubling spike in cases of multi-drug resistant TB. *Moyo J. Inter Press Service. 25 Jan 2015.*

Addressing drug-resistant TB in North West Province, South Africa through decentralized care and treatment services. *Stop TB Partnerhsip. 27 Jan 2015.*

Tuberculosis in the African continent: a comprehensive review. *Chatterjee D, Pramanik AK. Pathophysiology. Advance e-pub 14 Jan 2015.*

The political and ethical challenge of multi-drug resistant tuberculosis. This article argues that bioethics needs to be willing to engage in a more radical critique of the problem than is currently offered. *Degeling C, Mayes C, Lipworth W, Kerridge I, Upshur R. J Bioeth Inq. Advance e-pub 29 Jan 2015.*

Treatment of uncomplicated malaria with artesunate plus sulfadoxine–pyrimethamine is failing in Somalia. The study underscores the need to update Somalia's national malaria treatment policy. *Warsame M, Hassan AM, Barrette A. Trop Med Int Health. Advance e-pub 25 Jan 2015.*

SMS photograph-based external quality assessment of reading and interpretation of malaria rapid diagnostic tests in the Democratic Republic of the Congo. EQA revealed common errors in RDT reading and interpretation as well as problems in supply, distribution and training. *Mukadi P, Gillet P, Barbé B, et al. Malaria J. 28 Jan 2015;14:26.*

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