Programm & Abstracts

Tropical Medicine and Parasitology

102. Jahrestagung der Deutschen Gesellschaft für Tropenmedizin und Internationale Gesundheit e.V.

Heidelberg
15. - 16. März 2012

Neue Universität Heidelberg – Hörsaalgebäude
Universitätsplatz, 69117 Heidelberg

www.dgp-dtg-2012-heidelberg.de

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Veranstaltungstermin

15.-16. März 2012

Hörsaalgebäude Bild: Murat Tekin, RG GmbH

Veranstaltungsort

Neue Universität Heidelberg
Hörsaalgebäude
Universitätsplatz
69117 Heidelberg

Wissenschaftliche Organisation

Prof. Dr. med. Thomas Junghanss
Dr. med. Annette Kapaun
Angelika Sandritter (Sekretariat)

Sektion Klinische Tropenmedizin
Department für Infektiologie
Universitätsklinikum Heidelberg
Im Neuenheimer Feld 324
69120 Heidelberg

Tagungsorganisation / Industrieausstellung

RG Gesellschaft für Information und Organisation mbH
Würmstrasse 55, D-82166 Gräfelfing, Tel.: +49- (0)89 - 89 89 948-0,
Fax.: +49- (0)89 - 89 80 99 34, e-mail: info@rg-web.de

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- Deutsche Gesellschaft für Parasitologie e.V. (DGP)

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K Wiesenbacher – Berlin
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Grußwort

Liebe Kolleginnen und Kollegen,

das Thema der 102. Jahrestagung der „Deutschen Gesellschaft für Tropenmedizin und Internationale Gesundheit“ ist „Tropical Medicin & Global Health“.

Die „Tropenmedizin“ widersetzt sich allen Versuchen durch einen „angemesseneren“ Begriff ersetzt zu werden - einen Begriff der zutreffender beschreibt, was sich unter diesem Schirm in einer langen, turbulenten Geschichte versammelt hat.
Als Antwort auf die Änderungen der Bedeutung und Konzepte der „Tropenmedizin“ wurde der Begriff im Laufe der letzten Jahrzehnte mit „Public Health“, später dann mit „International Health“ verbunden, um unser Arbeitsfeld in seiner ganzen Breite deutlich zu machen. Dies ist auch die Thematik der diesjährigen Jahrestagung.

Es ist wert bemerkt zu werden, dass sich in Zeiten zunehmender Spezialisierung Kolleginnen und Kollegen aus so verschiedenen Disziplinen wie klinische Medizin, biomedizinische Wissenschaften, Gesundheitsökonomie und Sozialwissenschaften treffen um miteinander zu diskutieren.
So kontrovers der Begriff „Tropenmedizin“ empfunden werden mag, hat er doch der Fragmentierung widerstanden und den Weg zur „International Health“ und „Global Health“ mit gebahnt. Die Definition des Begriffes „Global Health“ ist noch nicht ausgereift. Wir sind jedoch auf gutem Weg ein Gesundheitskonzept zu verfassen, das das komplexe Netzwerk von Faktoren, die „Gesundheit“ konstituieren, auf globalem Niveau berücksichtigt.

Es ist wahrscheinlich eine der größten intellektuellen Herausforderungen, die vor uns liegt, dieses System in seiner ganzen Komplexität zu beschreiben, zu analysieren und so zu beeinflussen, dass wir näher an die Gesundheitsstandards heranrücken, die jeder auf diesem Planeten gleichermaßen verdient hat und die erreichbar sind.

Wir freuen uns sehr Sie in Heidelberg zu begrüßen.

Thomas Junghanss, Tagunspräsident
Annette Kapaun, Tagungspräsidentin
Thomas Löscher, 1. Vorsitzender der DTG

Plenum - Donnerstag 15.3.2012, 9:00 - 10:30
Festredner - Invited Speakers

Tropical Medicine in the 21st Century

David A. Warrell
Emeritus Professor of Tropical Medicine
University of Oxford, UK

Global Health - Whose business is it?

Dr. Ilona Kickbusch
Director
Global Health Programme at the Graduate Institute, Geneva, Switzerland

Im Anschluß
Plenums-Debatte

Plenum - Freitag, 16.3.2012, 9.00 – 10.30

Tropenmedizin und Globale Gesundheit: „The under 40ies meet the over 60ies“

Sechs Kurzvorträge von Vertreterinnen und Vertretern der beiden Generationen und eine Debatte

» Drei prominente „Ältere“ kommen zu Wort, wie sie rückblickend ihre Aktivitäten auf den Gebieten Tropenmedizin und Globale Gesundheit sehen und bewerten und was sie der nächsten Generation mit auf den Weg geben wollen

» Drei „junge Kolleginnen und Kollegen“ berichten über ihre Erfahrungen, ihre Wünsche und Visionen

» Podiumsdiskussion der Panneliste gemeinsam mit dem Plenum

Um die Spannung zu erhöhen, werden Sie erst zu Beginn des Plenums sehen, wer auf der Bühne sitzt. Wir verraten soviel, dass das ganze Spektrum der Tropenmedizin und Globale Gesundheit vertreten sein wird: die klinische Tropenmedizin, die internationale Zusammenarbeit, die universitäre Lehre und Forschung und der studentische Blickwinkel.

1 - Trypanosomiasis und Leishmaniasis

Chair/s: Gundel Harms, August Stich
15. März 2012, 10:45 - 12:30 Uhr

10:45 - 11:15	K1	Die Trypanosomen-Erkrankungen des Menschen - Aktueller Stand bei Chagas und Schlafkrankheit A Stich, Würzburg
11:15 - 11:35	K2	Aktuelles zu Diagnostik und Therapie der kutanen Leishmaniose G Harms, Berlin
11:35 - 11:50	V1	Tumor Necrosis Factor Alpha Antagonist Drugs and Leishmaniasis in Europe P Zanger, Tübingen
	P1	Behandlung von Viszeraler Leishmaniose: Modellvorhersagen zur Ausbreitung von Antimon-resistenten Leishmanien in Bihar, Indien A Stauch, Tübingen"
12:00 - 13:00		Sitzung Arbeitsgemeinschaftt Ausschuss Leishmaniasis der DTG, PEG und DDG

K1 Die Trypanosomen-Erkrankungen des Menschen – Aktueller Stand bei Chagas und Schlafkrankheit

(A Stich, Missionsärztliche Klinik, Würzburg)

Das Themenfeld der „Vernachlässigten Tropenkrankheiten“ (Neglected Tropical Diseases – NTDs) umfasst ein buntes Bündel von Erkrankungen, die kaum etwas gemeinsam haben. Ihr Hauptmerkmal ist die Diskrepanz zwischen ihrer Bedeutung als Gesundheitsproblem für lokale Bevölkerungsgruppen einerseits und ein fehlendes Interesse von Wissenschaft und Industrie an der zielgerichteten Entwicklung neuer diagnostischer Instrumente, Medikamente oder Kontrollstrategien andererseits. Seit kurzem sind NTDs allerdings wieder „modern“, ihre Erforschung und Bekämpfung wird durch manche neue Förderkonzepte unterstützt. Als klassisches Beispiel für NTDs gelten die Trypanosomenerkrankungen des Menschen: Die Chagas-Krankheit ist ein weit verbreitetes Gesundheitsproblem Süd- und Mittelamerikas. Trotz großer Erfolge der Bekämpfung in manchen Ländern sind immer noch Millionen von Menschen in endemischen Gebieten erkrankt, die meisten von ihnen unheilbar. Die derzeit existierenden diagnostischen und therapeutischen Instrumente für Patienten mit chronischer Chagas-Krankheit sind immer noch vollkommen unzureichend. Ein Phänomen, dessen Bedeutung erst in den letzten fünf Jahren in seinem Umfang erkannt wurde, ist die Gefahr einer Transmission des Erregers Trypanosoma cruzi in Europa. Fallberichte vor allem aus Spanien und Italien warnen vor der Gefahr einer vertikalen Transmission bei seropositiven Müttern aus endemischen Regionen (von denen viele schon seit Jahren in Europa leben) und vor der Möglichkeit einer Übertragung der Parasiten durch Bluttransfusionen oder Organspenden. Die Bedeutung dieses Problems für Deutschland, wo mehr als 50.000 Immigranten aus Lateinamerika leben, ist derzeit noch völlig unklar. Die Afrikanische Trypanosomiasis oder Schlafkrankheit hat in den 1990er Jahren eine dramatische Rückkehr mit vielerorts epidemischen Ausmaßen erfahren. Seit 10 Jahren befindet sich die Krankheit wieder im Rückzug. Trotz der Erfolge der Kontrollprogramme in Ländern wie Kongo, Angola oder Süd-Sudan, viele von ihnen maßgeblich von Nichtregierungsorganisationen betrieben, fehlen der Medizin derzeit die Instrumente, diese Errungenschaften nachhaltig zu sichern. Ein anderes Phänomen ist das unregelmäßige Auftreten von Patienten mit importierter akuter Schlafkrankheit in Europa (letzter Fall in Deutschland Januar 2012), was die Bedeutung dieser Trypanosomen-Infektion in der Differentialdiagnose von „Fieber nach Tropenaufenthalt“ und die Notwendigkeit des Vorhaltens der lebensrettenden Medikamente in zentralen Notfalldepots unterstreicht.

K2 Aktuelles zur Diagnostik und Therapie der kutanen Leishmaniose

G Harms, Institute of Tropical Medicine and International Health Charité, Berlin

Die kutane Leishmaniose ist eine immer häufigere Diagnose bei Reiserückkehrern. Die meisten von Reisenden nach Deutschland importierten kutanen Leishmaniosen stammen aus den Ferienregionen im Mittelmeerraum sowie aus Zentral- und Südamerika. Eine optimale, gegen alle Leishmanien-Spezies wirksame Therapie gibt es nicht, wohl aber deutliche Unterschiede im Ansprechen der verschiedenen Spezies gegenüber den unterschiedlichen Medikamenten. Für die lokale Behandlung sind periläsionales Antimon, allein oder in Kombination mit Kryotherapie, Thermotherapie und Salben auf Paromomycin-Basis verfügbar; eine lokale Behandlung auch von kutanen Leishmaniosen der Neuen Welt nach Abwägung bestimmter Kriterien wird zunehmend diskutiert. Da alle verfügbaren Medikamente mit (im Falle der systemisch anzuwendenden teils erheblichen) Nebenwirkungen verbunden sind, sollte eine eindeutige Diagnose bzw. Identifizierung der verursachenden Leishmanien-Spezies vor Therapiebeginn vorgenommen worden sein. Die PCR und anschließende Restriktionsenzymanalyse (RFLP) haben sich hierfür zum diagnostischen Goldstandard entwickelt. Die HSP 70 PCR - RFLP eignet sich besonders gut, um die Spezies des Subgenus Viannia zu differenzieren. Die deutschen Leitlinien zur Diagnostik und Therapie der kutanen und mukokutanen Leishmaniasis wurden kürzlich überarbeitet. Um einheitliche Richtlinien zur Diagnostik und Therapie zu entwickeln und den Therapieverlauf einer größeren Anzahl von Fällen zu verfolgen, hat sich ein europäisches Konsortium (LeishMan; European Team for Diagnosis and Management of Leishmaniasis) gebildet.

V1 Tumor Necrosis Factor Alpha Antagonist Drugs and Leishmaniasis in Europe

(P Zanger, Eberhard Karls Universität, Institut für Tropenmedizin, I Kötter, Medizinische Klinik, Eberhard Karls Universität, P Kremsner, Eberhard Karls Universität, Institut für Tropenmedizin, S Gabrysch, Institut für Public Health, Universität Heidelberg)

Leishmaniasis is endemic in Europe and the prevalence of latent infection in the Mediterranean region is high. Reports describing opportunistic leishmaniasis in European patients treated with tumor necrosis factor (TNF) alpha antagonist drugs are rapidly accumulating. For other granulomatous infections, risk of opportunistic disease varies by mode of TNF-alpha antagonism. This study explores whether this may also be the case for leishmaniasis. We ascertained the relative frequency of exposure to different TNF antagonist drugs among published cases of opportunistic leishmaniasis in Europe and compared this to the prescription of these drugs in Europe. We found that risk of opportunistic leishmaniasis is higher in patients receiving anti-TNF monoclonal antibodies (infliximab or adalimumab) compared to patients treated with the TNF-receptor construct etanercept. Clinicians may want to consider these observations which suggest that etanercept should be favoured over anti-TNF monoclonal antibodies in individuals living in or visiting areas endemic for leishmaniasis until evidence from prospective research is available. A European adverse event reporting system is required to identify rare opportunistic infections associated with immunosuppressive and immunomodulatory biotherapies

P1 Behandlung von Viszeraler Leishmaniose: Modellvorhersagen zur Ausbreitung von Antimon-resistenten Leishmanien in Bihar, Indien

(A Stauch, University of Tübingen)

Hintergrund Viszerale Leishmaniose (VL) verursacht jedes Jahr weltweit etwa 500,000 neue Fälle und mehr als 50,000 Tote. Etwa 60% aller VL-Patienten treten auf dem Indischen Subkontinent auf, wovon etwa 90% aus Bihar, Indien, stammen. Die Regierungen von Indien, Nepal und Bangladesch verabschiedeten 2005 ein regionales Eliminationsprogramm mit dem Ziel bis 2015 die VL Inzidenz von etwa 22 Erkrankten je 10,000 Einwohner auf nur noch einen Fall zu reduzieren. Antimon-Präparate werden seit Jahrzehnten zur Behandlung von VL verwendet. Die vorwiegend in Bihar beobachteten, schnell anwachsenden Raten an fehlgeschlagenen Behandlungen auf bis zu 65%, werden auf Antimon-resistente Leishmanien zurückgeführt. Laboruntersuchungen legen nahe, dass resistente Leishmania-Stämme auch in Antimon-freier Umgebung den sensitiven Stämmen überlegen sind. Methode und Ergebnisse Wir nutzen ein deterministisches Modell, bestehend aus einem System gewöhnlicher Differentialgleichungen, um die Entstehung und Ausbreitung von resistenten Parasiten zu simulieren. Mit Hilfe einer Sensitivitätsanalyse wurden Parameter-Sets identifiziert, die erlauben, den beobachteten, schnellen Anstieg von fehlgeschlagenen Antimon-Behandlungen in Bihar zwischen 1980 und 1997 zu simulieren. Ergebnisse dieser Analyse zeigen, dass Antimon-Resistenz alleine nicht ausreicht, um die Bihar Beobachtungen zu erklären. Daher wurden 2 Hypothesen zu zusätzlichen Fitnessfaktoren in Antimon-resistenten Parasiten untersucht: die zusätzliche Fitness ist (i) Wirt-bezogen und steigert den Anteil symptomatisch Erkrankter nach Infektion, oder (ii) Vektor-bezogen und steigert die Infektionswahrscheinlichkeit für Sandmücken nach einer Blutmalzeit an einem infizierten Wirt. Schlussfolgerungen Beide Hypothesen zu einer zusätzlichen Überlegenheit von resistenten Parasiten bieten Erklärungsmöglichkeiten für die rasch absinkende Effektivität der Antimon-Behandlung. Der Wirt-bezogene Fitnessfaktor (die Pathogenität resistenter Parasiten ist erhöht) wäre klinisch beobachtbar. Der Vektor-bezogene Fitnessfaktor (die Übertragung resistenter Parasiten ist erhöht) könnte völlig unbemerkt über asymptomatische Parasitenträger erfolgen. Beide zusätzlichen Fitnessfaktoren bewirken, dass sensitive Parasiten vollständig durch Resistente ersetzt werden, auch wenn die Antimon-Behandlung durch andere Medikamente ersetzt wird.

2 - Malaria 1

Chair/s: Jürgen May, Olaf Müller
15. März 2012, 13:30 - 15:30 Uhr

13:30 - 14:00	K3	New Developments in Malaria Control F Mockenhaupt, Berlin
14:00 - 14:15	V2	Late-onset post-treatment haemolysis after parenteral artesunate for severe imported malaria. Own observations and review of current evidence T Rolling, Hamburg
14:15 - 14:30	V3	Coverage of Insecticide-treated Mosquito Nets in a Rural Area of Burkina Faso: Equity Aspects in the Wake of a Mass Distribution Campaign C Zöllner
14:30 - 14:45	V4	Universal Coverage with Malaria Control Interventions: Achievements and Challenges in Rural Burkina Faso M De Allegri, Heidelberg
14:45 - 15:00	V5	Prospective open label trial with artemether-lumefantrine three years after its broad introduction in Jimma Zone, Ethiopia: first evidence for delayed parasite clearance rates N Berens-Riha, München
15:00 - 15:15	V6	Falciparum malaria in young children of rural Burkina Faso: comparison of survey data in 1999 with 2009 C Beiersmann, Heidelberg
15:15 - 15:30	V7	Impact of Artemisinine-Combination-Therapy Introduction on Malaria Prevalence in Mbeya Region, Tanzania G Froeschl, München

K3 New developments in malaria control

(F Mockenhaupt, Institut für Tropenmedizin & Internationale Gesundheit, Charité – Universitätsmedizin Berlin)

Over the last decade, international funding for malaria control has substantially increased reaching US$ 2 billion in 2011. This has been paralleled by a considerable, although variable, scale-up of control activities in sub-Saharan Africa, the region still bearing most of malaria-related mortality: household ownership of at least one insecticide-treated net is estimated to have risen from 3% in 2000 to 50% in 2011, and 11% of the African population at risk are considered to be protected by indoor residual spraying (IRS) of insecticides today. Parasitological testing has increased but the majority of treatments are still administered without confirmed diagnosis. Procurement by the public sector of artemisinin-based combination treatment (ACTs) courses has risen more than ten-fold but coverage still needs to be increased. Also, scaling up intermittent preventive treatment (IPT) of pregnant women with sulfadoxine-pyrimethamine has lagged behind: only one quarter of pregnant African women received two doses of IPT in 2009-2011. Nevertheless, following the scale-up of malaria control interventions, major reductions in malaria morbidity and mortality have been observed in several African countries and in Asia. The scarce data from high endemicity regions indicate less notable decreases, stagnation or even increases of malaria suggesting that a general decline of malaria does not occur in all of Africa. Moreover, insecticide resistance and emerging artemisinin resistance in Southeast Asia may threaten control achievements. Additions to the control armamentarium include IPT for infants and children, new ACTs, approaches to target hotspots of transmission, and intermittent screening and treatment in pregnancy, among others, but still need evaluation and/or adoption as policy. Malaria control continues to be a major public health task for the foreseeable future. Achievements need to be consolidated and extended, and surveillance intensified.

V2 Late-onset post-treatment haemolysis after parenteral artesunate for severe imported malaria. Own observations and review of current evidence.

(T Rolling, Universitätsklinikum Hamburg-Eppendorf (UKE), S Schmiedel, Medical Department I, University Medical Center Hamburg-Eppendorf, D Wichmann, Klinik für Intensivmedizin und Sektion Infektiologie/Tropenmedizin, Universitätsklinikum Hamburg-Eppendorf, Hamburg, G Burchard, Medical Department I, University Medical Center Hamburg-Eppendorf, JP Cramer, Universitätskrankenhaus Hamburg-Eppendorf, Medizinische Klinik I, Sektion Tropenmedizin und Bernhard-Nocht-Institut für Tropenmedizin)

Parenteral artesunate is now recommended as first-line drug for severe malaria as it has been shown to be a superior treatment option compared to parenteral quinine in adults as well as in children. However, because of the trial design of the landmark –QUAMAT studies and the lack of infrastructure in endemic countries, little evidence is so far available on long-term safety. Recently, cases of self-limited late-onset haemolysis have been reported retrospectively in European travelers after several travel medicine centres have started to use parenteral artesunate in imported severe malaria. In our clinic, we have also seen late-onset haemolysis as a potential treatment-related complication after treatment with artesunate in three returning travelers with severe malaria and hyperparasitaemia. The typical pattern in these patients was an initial stabilization of disease-associated alterations in haemoglobin, lactate dehydrogenase (LDH) and bilirubine as artesunate effectively eliminated blood stage parasites. Approximately two weeks after the first dose of artesunate, haemolytic activity re-occurred. Some patients required blood transfusions. Here we report own observations and increasing evidence. Post-treatment haemolysis after parenteral artesunate may be of clinical relevance, in particular in patients with high parasite levels. Studies of adequate power are needed to assess the incidence and pathophysiology of this potentially treatment-related complication.

V3 Coverage of Insecticide-treated Mosquito Nets in a Rural Area of Burkina Faso: Equity Aspects in the Wake of a Mass Distribution Campaign

(C Zöllner, University of Heidelberg, M De Allegri, University of Heidelberg, V Louis, University of Heidelberg, M Yé, A Sié, Centre de Recherche en Santé de Nouna, J Tiendrebeogo, O Mueller, University of Heidelberg)

BACKGROUND: Insecticide-treated mosquito nets (ITNs) are a main element of malaria prevention, contributing to a significant reduction of malaria morbidity and mortality. The major malaria burden lies in Sub-Saharan Africa. Several prevention policies have been put into place to roll back malaria especially in this region of the world. In the last years, the strategy focusing on ITNs shifted from a targeted distribution to vulnerable groups, eg. children under five years and pregnant women, to a universal distribution. Burkina Faso has adopted this strategy and organised a national campaign for the universal distribution of long-lasting insecticide-treated nets in 2010. METHODS: The study uses data from a panel survey conducted annually in the rural province of Kossi, northwestern Burkina Faso. In order to determine the effect of the mass distribution campaign on ITN coverage, we compared survey data from 2010 and 2011. A total of 1106 households participated in the survey in 2010 and 1094 in 2011. Household members were asked whether they own a mosquito net and if so, how many. Interviewers then determined whether the ITN is insecticide-treated. Data was also collected on characteristics and socio-economic status of the household. RESULTS: Nearly all households (99%) own at least one ITN in 2011 compared to 59% in 2010. While in 2010, ITN ownership correlated with a higher socio-economic status, in 2011 this aspect does no longer play a role. However, only 52% of households in 2011 meet the target of the national universal coverage campaign, which is to reach the ratio of two people per ITN. CONCLUSION: The mass distribution campaign ensured a large-scale coverage of ITNs in rural Burkina Faso and contributed to a more equitable availability of ITNs. Yet the target of the mass distribution campaign has only been reached partly, which deserves further investigation.

V4 Universal Coverage with Malaria Control Interventions: Achievements and Challenges in Rural Burkina Faso

(M De Allegri, University of Heidelberg, VR Louis, J Tiendrebeogo, A Souares, M Yé, Y Tozan, A Jahn, University of Heidelberg, O Mueller, University of Heidelberg)

This paper reports on a study which assessed coverage with malaria control interventions in rural Burkina Faso, namely insecticide-treated mosquito nets (ITN) ownership; intermittent preventive treatment (IPTp) for pregnant women; and artemisinin-based combination therapy (ACT) for under-five children. The study also addressed the distributional impact of such interventions, with specific reference to equity. The study used data from a representative household survey conducted on 1106 households in the Nouna Health District in 2010. Findings indicated that 59% of all households owned at least one ITN, 67% of all pregnant women received IPT at least once, and 34% of under-five children reporting a malaria case were treated with ACT. Multivariate logistic regression revealed that higher socio-economic status, ownership of at least one radio, and living in a village within a Health and Demographic Surveillance System were significantly positively associated with ITN, IPTp, and ACT coverage. ITN coverage was higher among households in villages which had previously hosted an ITN trial and/or the most favourable arm of a trial. Comparing current findings with previous estimates suggests that the country has made substantial progress towards scaling up malaria control interventions, but that current coverage rates are still far from achieving the universal coverage targets set by the Roll Back Malaria Partnership. In addition, current coverage patterns reveal the existence of multiple inequities across groups, suggesting that current policies are inadequate to achieve equitable scaling up. Future planning of malaria control interventions ought to take into consideration current inadequacies and lead to programs better designed to overcome them.

V5 Prospective open label trial with artemether-lumefantrine three years after its broad introduction in Jimma Zone, Ethiopia: first evidence for delayed parasite clearance rates

(N Berens-Riha, Ludwig-Maximilians-Universität, T Eshetu, Jimma University)

Background: Artemether-lumefantrine (AL) is approved as first-line treatment for uncomplicated falciparum malaria in more than 40 endemic countries. In Jimma Zone, Ethiopia, the first-line treatment of uncomplicated falciparum malaria has been changed from sulfadoxine/pyrimethamine (SP) to AL in 2006. The objective of this study was to assess the effectivity of AL two to three years after its broad introduction. Methods: A prospective open label, single arm study was conducted in four areas in Jimma Zone with moderate transmission. Patients with uncomplicated falciparum mono-infection were consecutively enrolled. Diagnosis was confirmed by microscopy. Follow-up visits were at day 2, 3, 7, 28 and 42 or any other day if symptoms occurred. Primary outcome measure was PCR-corrected parasitological cure rate by day 42. The outcome variables recrudescence, reinfection, prolonged clearance time and prolonged gametocytaemia were stratified by gender, age and nutritional status;

logistic or linear regression models were used. Results: During the 2008 and 2009 rainy seasons, 348 patients of at least 1 year of age were enrolled and followed-up for 42 days. 34 patients were lost to follow-up. No early treatment failure occurred but parasite clearance rates were prolonged in 6 patients. 28 (8.9%) of 314 developed new parasitaemia during follow-up. PCR-corrected cure rate was 94.7% at day 42. There was evidence for an association between prolonged parasite clearance rates and occurrence of recrudescences (OR 10.1, 95% CI 1.7-59.7, P=0.01). Prevalence of the chloroquine resistance-related mutation pfcrt 76T was similar to data before introduction of AL but a clear selection for the pfmdr 86N genotype was detected. Conclusion: AL is still very effective in Jimma Zone, Ethiopia. However, delayed parasite clearance is alarming and should be closely monitored. Mutation patterns seem to change with different drug pressure but do not favour re-introduction of chloroquine in this region.

V6 Falciparum malaria in young children of rural Burkina Faso: comparison of survey data in 1999 with 2009

(C Beiersmann, Institute of Public Health, Heidelberg, M Bountogo, CRSN, J Tiendrebeogo, M De Allegri, University of Heidelberg, V Louis, Institute of Public Health Heidelberg, B Coulibaly, CRSN, M Yé, O Mueller)

Abstract Background: Roll Back Malaria (RBM) interventions such as insecticide-treated mosquito nets (ITN) and artemisininbased combination therapy (ACT) have become implemented with different velocities in the endemic countries of sub-Saharan Africa (SSA) in recent years. There is conflicting evidence on how much can be achieved under real life conditions with the current interventions in the highly endemic savannah areas of SSA. Methods: The study took place in a rural area of north-western Burkina Faso, which was defined as holoendemic in 1999. Clinical and parasitological data were compared in two cohorts of young children of the same age range from eight villages. Surveys took place in June and December of the year 1999 and 2009 respectively. Results: Prevalence of mosquito net use increased from 22% in 1999 to 73% in 2009, with the majority of nets being ITNs in 2009. In 2009, P. falciparum prevalence was significantly lower compared to 1999 (overall reduction of 22.8%). Conclusions: The reduction in malaria prevalence in young children observed between 1999 and 2009 in a rural and formerly malaria holoendemic area of Burkina Faso is likely attributable to the increase in ITN availability and utilization over time.

V7 Impact of Artemisinine-Combination-Therapy Introduction on Malaria Prevalence in Mbeya Region, Tanzania

(G Froeschl, Tropeninstitut Muenchen, I Kroidl, Ludwig-Maximillian-Universität München)

Background: Data on the impact of Artemisinine Combination Therapie (ACT) on prevalence of parasitemia, corresponding to malaria transmission, has so far been scarce. Objective: To investigate the impact of the introduction of ACT on the prevalence of malaria parasitemia in the Mbeya Region in Tanzania. Methods: Since 2005, a cohort of around 17.000 individuals, 10% of all households in 9 sites of Mbeya Region in the South of Tanzania, are being surveyed as a closed population. ACT as first line therapy has been implemented in the region through national guidelines in 2006 through 2007, replacing Sulfadoxine/ Pyrimethamine (SP). From the included sites, 5.501 individuals were include that presented at all three survey visits (2006 – 2008). The comparison is based on Multivariate Analysis of parasitemia prevalence through Rapid Diagnostic Test (RDT) results, with age, sex, socioeconomic status and bed net use as potential confounders being controlled for. As a proxy for climatic conditions, the Normalized Difference Vegetation Index (NDVI) has been compared for the observed calendar years 2006 and 2007, with changes ranging from -3.8% to 6.4%, averaging at 4.6%, indicative of even better conditions for mosquito breeding in 2007. Results: While analyzed data showed a negative correlation between age and prevalence of parasitemia and a higher prevalence in males, both age and sex had no confounding effect in the significant drop in parasitemia prevalence over time. Socioeconomic status had no confounding effect in the drop in parasitemia prevalence over time. Conclusions: The longitudinal survey in the observed catchment area showed a significant and relevant decline in the prevalence rate of malaria parasitemia, which could not be explained by potential confounders, such as climatic changes. The data suggests that ACTs are not only an effective instrument for reduction of immediate morbidity and mortality, but also for reduction of transmission rates.

3 - Klinische Tropenmedizin 1

Chair/s: Annette Kapaun, Hinrich Sudeck
15. März 2012, 16:00 - 18:00 Uhr

16:00 - 17:00		Fallpräsentationen A Kapaun, Heidelberg, und H Sudeck, Hamburg
17:00 - 17:30	K100	Envenoming and poisoning by animals: The most neglected of all human diseases D Warrell, Oxford (UK)
17:30 - 18:00	K4	VAPAGuide (www.vapaguide.info) – an Online Emergency Guide to **Venomous And Poisonous Animals** T Junghanss, Heidelberg, und M Bodio, Basel (CH)
	P2	Sequence analysis of PCR amplified trace DNA from clinical bite site swabs reveals identities of snakes involved in bites in Bangladesh U Kuch, Frankfurt
	P3	Development and laboratory validation of a loop-mediated isothermal amplification (LAMP) test to rapidly detect Common Krait (Bungarus caeruleus) DNA U Kuch, Frankfurt
	P4	Murine Typhus with Raynaud Syndrome after returning from Indonisia C Hahn, Ehrenkirchen

K100 Envenoming and poisoning by animals: The most neglected of all human diseases

D Warrell, Oxford (UK)

K4 VAPAGuide (www.vapaguide.info) – an Online Emergency Guide to Venomous And Poisonous Animals

T Junghanss, Sektion Klinische Tropenmedizin, UniversitätsKlinikum Heidelberg,
M Bodio, Schweizerisches Tropen- und Public Health Institut, Basel (CH)

Accidents due to venomous and poisonous animals belong to the most neglected health problems worldwide. A few examples: In India around 40'000 to 50'000 people die every year from snakebite alone. Almost exclusively inhabitants of rural areas are affected. Scorpion stings with systemic envenoming are widespread in arid zones all over the planet and increasingly occur in urban zones of Latin America. Approximately 50'000 people suffer yearly from Ciguatera, a poisoning with chronic progression after oral intake of tropical reef fish. Even inhabitants far distant from tropical areas increasingly suffer from accidents with poisonous animals, be it by keeping exotic species in their homes or by travelling as tourists into areas with dangerous animals. Useful information for clinicians to identify the culprits of accidents with venomous and poisonous animals and to manage patients is widely dispersed in the biological and medical literature and is not easily accessible in emergency situations. The internet-based, free access VAPAGuide has been designed to fill this gap. The digitalized internet version provides worldwide access to a highly standardized database and guidelines on the biology and clinical management of accidents with venomous and poisonous animals to support clinicians caring for patients. The session introduces the internet platform. Pathways to solve problems as they occur in clinical practice will be demonstrated with the VAPAGuide.

P2 Sequence analysis of PCR amplified trace DNA from clinical bite site swabs reveals identities of snakes involved in bites in Bangladesh

(U Kuch, Biodiversity and Climate Research Centre (BiK-F), P Höde, Biodiversität und Klima Forschungszentrum (BiK-F), Emerging and Neglected Tropical Diseases Unit, K Hasan, Dhaka Medical College Hospital, A Basher, Dhaka Medical College Hospital, A Ghose, Chittagong Medical College Hospital, MA Faiz, Bangladesh Institiute for Tropical and Infectious Diseases)

Snake bite envenoming is one of the most neglected diseases of the 21st century. Lack of epidemiological data, including on the biodiversity of snakes causing bites, is a major challenge [1-3]. We recently demonstrated that PCR-aided sequencing of DNA from experimental bite sites accurately identifies snake species. Here, we present results from the first clinical application of this method. We carried out a multi-centre prospective observational study of snake bite in government medical college hospitals of Bangladesh. The study involved 87 patients who presented with a history of snake bite between July 2006 and June 2008. We used SwabSafe Kits (SwissForensix) consisting of a swab-stick and a cardboard box to collect, store and transport genetic material from the (presumed) bite site. DNA was extracted using a phenol-chloroform protocol followed by PCR amplification of a 400 bp region of the mitochondrial cytochrome b (cytb) gene and Sanger sequencing. DNA sequences were compared to the contents of public and internal databases. We obtained PCR products from 22 (25%) of 87 patient samples. All amplicons yielded DNA sequences of snakes, including the dangerously venomous species Naja kaouthia (Monocellate Cobra, n=6), Naja naja (Spectacled Cobra, n=2), Bungarus caeruleus (Common Krait, n=2), and Bungarus walli (Wall's Krait, n=2). The samples from 9 patients yielded sequences of non-venomous freshwater snakes (Xenochrophis piscator and other Natricidae species). Most species could be identified unambiguously using a simple BLAST search on the internet. Although limited by a small sample size and a low number of killed snakes brought to hospital for validation, our study allowed for internal validation by analysis of single nucleotide polymorphisms and cross-checks against specimen-validated data sets, and provided important data on snake bite epidemiology in Bangladesh. Thus, forensic DNA-based methods are a useful addition to the diagnostic portfolio for this globally neglected disease of poverty.

P3 Development and laboratory validation of a loop-mediated isothermal amplification (LAMP) test to rapidly detect Common Krait (Bungarus caeruleus) DNA

(P Höde, Biodiversität und Klima Forschungszentrum (BiK-F), Emerging and Neglected Tropical Diseases Unit, U Kuch, Biodiversity and Climate Research Centre (BiK-F))

Snake bite envenoming is a neglected disease for which essential diagnostics and medicines are widely unavailable. South Asia has the highest mortality due to snake bites [1]. The Common Krait (Bungarus caeruleus) is distributed throughout this region. It causes a syndrome of envenoming that is dominated by neuromuscular paralysis in the absence of local envenoming. Paralysis usually follows an asymptomatic period and, once clinically apparent, does not respond to antivenom. The ability to rapidly diagnose bites by this species is a prerequisite for clinical studies evaluating the potential benefit of giving antivenom earlier. We have previously shown that trace DNA from the bite site can be used to identify snake species by PCR and sequence analysis. Here, we report the development of a loop mediated isothermal amplification (LAMP) test to detect B. caeruleus DNA. We designed six specific primer sets based on regions of the mitochondrial cytb gene of B. caeruleus that are maximally different to those of other Asian snakes, performed experiments with Loopamp DNA Amplification Kits (Eiken) using hydroxynaphtol-blue [2] to visualize positive reactions, and double-checked results by gel electrophoresis. Read by eye, test results were distinctly positive after at least 25 minutes reaction time when B. caeruleus DNA was used as a template. Turbidity increase in the absence of dye as well as the colour change of hydroxynaphtol-blue from violet (negative) to sky blue (positive) were sufficient for reading the test. The LAMP test did not cross-react with DNA from other Bungarus species. Advantages of the LAMP method that render it interesting for application in the rural tropics include the generation of DNA copies with a very high specificity, efficiency and speed at constant temperature [3] with no need for expensive equipment like thermal cyclers, a substantially shorter time to diagnosis, and its ease of test reading.

P4 Murine Typhus with Raynaud Syndrome after returning from Indonesia

(C Hahn, Philipps- Universität Marburg, F Holst, Tropen- u. Reisemedizinisches Zentrum Marburg)

Background: Murine typhus is an infectious disease mainly in the developing world and is caused by Rickettsia typhi which is primarily transmitted by the rat flea. Methods: This case report describes the clinical manifestations, investigations and treatment of a 47-year-old patient, who presented at the clinic with high fever after returning from Indonesia. Results: The male patient was examined three days after returning from a

14-weeks business stay in Indonesia. He complained about myalgia over the past five days and persistent fever coupled with strong headaches for the past four days. The physical investigation was without pathological findings. Laboratory results showed increased inflammatory markers, diminished thrombocytes, and high transaminases and LDH levels. Repeated tests for Malaria and blood cultures were negative. MRT of the head showed only subtle signs of a chronic sinusitis. On the second day a calculated antibiotic therapy (Doxycycline together with a third generation Cephalosporine) was started. Extensive serologic testing for the prevalent viral and bacterial diseases was all negative. After repeated tests for Rickettsia typhi a seroconversion with a high titer could be observed. Clinical signs and laboratory results improved quickly and the patient could be discharged after one week. Two weeks later Raynaud phenomenon of the right hand could be observed. Extensive immunological and angiological studies together with nailfold capillary examination could not explain the Raynaud Syndrome. Conclusion: Murine typhus is frequently underdiagnosed, especially if a typical rash is not observed. Therefore empirical antibiotic treatment of fever in the returning traveler should also have activity against intracellular bacteria including Rickettsia typhi. Since typhus group rickettsiae lead to endothel lesions, Raynaud syndrome might be a specific sequelae of murine typhus.

4 - Hautinfektionen und Bakteriämien/ Sepsis

Chair/s: Uwe Groß, Moritz Vogel
15. März 2012, 10:45 - 12:30 uhr

10:45 - 11:00	V8	Incidence of septicemia among children in rural Ghana NG Schwarz, Hamburg
11:00 - 11:15	V9	Prevalence of bacterial and parasitic infections in Ghana – a cross-sectional study in preterm pregnant women U Groß, Göttingen
11:15 - 11:30	V10	Too neglected to make it to the list: Management of chronic wounds in a resource poor setting M Vogel, Heidelberg
11:30 - 11:45	V11	Clinical epidemiology of skin conditions including Buruli Ulcer in a rural community of southern Ghana M Schindler-Piontek, Heidelberg
11:45 - 12:00	V12	Histopathology of Buruli ulcer skin lesions before and during antibiotic treatment: deeper insights into plaque and secondary lesions T Ruf, Basel (CH)
12:00 - 12:15	V13	Genetic fine-typing of Mycobacterium ulcerans, the causative agent of Buruli ulcer K Röltgen, Basel (CH)
12:15 - 12:30	V14	Prevention of tungiasis and the tungiasis-associated morbidity using an herbal repellent: a field study in rural Madagascar M Thielecke, Berlin
	P5	Detection of Viable M. ulcerans by Combined 16S rRNA Reverse-Transcriptase/IS2404 Quantitative Real-Time (q)PCR in Clinical Samples from Patients with Buruli Ulcer Disease M Beissner, München
	P6	External quality assurance for the laboratory diagnosis of Buruli Ulcer disease in Togo K Huber, München
	P7	Comparative Study on Different DNA Amplification Techniques (LAMP, Real-Time and conventional PCR) for the Molecular Diagnosis of Buruli Ulcer Disease M Beissner, München
	P8	Molecular Detection of Mutations of the rpoB-gene conferring Rifampicin Resistance in Clinical Samples of Patients with Buruli Ulcer Disease M Beissner, München
	P9	Spontaneous Clearance of a Secondary Buruli Ulcer Lesion Emerging after Completion of Chemotherapy - a Case Report from Togo M Beissner, München

V8 Incidence of septicemia among children in rural Ghana

(NG Schwarz, Bernhard-Nocht-Institut für Tropenmedizin, MV Nielsen, Bernhard Nocht Institute for Tropical Medicine, Infectious Disease Epidemiology, N Sarpong, Kumasi Centre for Collaborative Research in Tropical Medicine, R Krumkamp, Bernhard Nocht Institute for Tropical Medicine, Infectious Disease Epidemiology, DM Dekker, Kumasi Centre for Collaborative Research in Tropical Medicine, W Loag, Bernhard Nocht Institute for Tropical Medicine, Infectious Disease Epidemiology, S Amemasor, Kumasi Centre for Collaborative Research in Tropical Medicine, A Agyekum, Kumasi Centre for Collaborative Research in Tropical Medicine, F Marks, International Vaccine Institute, F Hünger, Institute for Transfusion Medicine, Laboratory Medicine and Medical Microbiology, C Krefis, Bernhard Nocht Institute for Tropical Medicine, RM Hagen, Bundeswehrkrankenhaus Hamburg, Y Adu-Sarkodie, Kwame Nkrumah University of Science and Technology, School of Medical Sciences, J May, Bernhard Nocht Institute for Tropical Medicine)

Introduction Due to the lack of microbiological diagnostic capacities (1) in Africa, the burden of bacteria septicaemia are insufficiently investigated. The aim of our study was to estimate incidences of bacteremic children and to describe the spectrum of antibiotic resistances. Methods Blood cultures from children <5 years, who were admitted to the Agogo-Presbyterian-Hospital (APH) from 09/07-07/09 were performed by the Becton Dickinson (BD) BACTEC™ system. Sensitivities to antiobiotics were tested using the Kirby-Bauer disc diffusion method. Denominators for incidence estimates were adjusted to the number of children in each village who were quoted to attend the APH in case of illness. Results Pathogens were isolated in 241 blood samples from 1086 hospitalizations (22.2%). Non-typhoidal Salmonella (NTS) accounted for 130 (53.9%) of the infections, Staphylococcus aureus for 31 (12.9%), Streptococcus pneumoniae for 21 (8.7%) and Salmonella enterica serovar Typhi for 17 (7.1%). The proportion of bacteremia decreased with age. The bacteraemia incidence in children under 5 years was 55.8 cases/1,000 children/year (CI 49.1 – 62.5) overall. The incidence for NTS was 30.1 (CI 25.1 – 35.1), for S. aureus 7.2 (CI 4.7 – 9.6), for S. pneumoniae 4.9 (CI 2.8 – 6.9), and for S. Typhi 3.9 (CI 2.1 – 5.8). The frequency of multi drug resistance (MDR), resistance against amoxicillin, chloramphenicol and cotrimoxazole) was 75.0% in NTS and 64.7% in S. Typhi isolates. Discussion In contrast to other studies that used the total age-population of the catchment area to obtain “minimal incidence estimates” we adapted the denominators on the village level using healthcare-seeking data. Our bacteremia incidences were more than five-times higher (3). The predominance of NTS in the Agogo area and the high proportion of isolates

with MDR has implications for antibiotic-regimen recommendations. So far, ciprofloxacin and ceftriaxon were 100% sensitive against NTS.

V9 Prevalence of bacterial and parasitic infections in Ghana – a cross-sectional study in preterm pregnant women

(F Völker, Universitätsmedizin Göttingen, J Abakah, St. Martin de Porres Hospital, G Köthe, St. Martin de Porres Hospital, C Kainah, St. Martin de Porres Hospital, O Zimmermann, University Medical Center Göttingen, U Groß, Universitätsmedizin Göttingen)

In developing countries of Sub-Saharan Africa, mother and child morbidity and mortality rates are still among the highest in the world (Ghana 2008, mortality rate 409/100000) (1). In this context, infectious diseases play a major role. Current knowledge on the prevalence of infectious diseases during pregnancy in rural settings is very limited. For that reason and within a pilot cross-sectional study, we screened 180 pregnant women close to term (maximum 1 week before delivery) from October to December 2011 for the presence of bacterial and parasitic pathogens or pathogen-specific antibodies. Low vaginal swabs were obtained and cultured on blood/chocolate agar to detect Group B-streptococci (GBS), listeria, and gonococci. Isolated cultures were placed in Amies transport media to confirm findings by MALDI-TOF at the Institute for Medical Microbiology of the University Medical Center Göttingen. Vaginal swabs were preserved in UTM tubes for further identification by PCR on Chlamydia trachomatis. Moreover, blood samples were taken and tested for specific antibodies against Treponema pallidum (TPPA), Brucella spp. (IgM/IgG), and Toxoplasa gondii (IgM/IgG). A thick blood drop was analyzed for malaria. In addition, all women were interviewed for the presence of potential risk factors, outcome of previous pregnancies and socio-economic aspects. Prematernity medial care services were recorded. Results show a rate of GBS close to the one found in industrialized countries: GBS, the leading cause of newborn sepsis in industrialized countries, were isolated from the birth canal in about 10% of all women. Listeria monozytogenes and Neisseria gonorrhoeae were not found at all. Chlamydia trachomatis was also not identified in 85 vaginal swabs tested, so far, which is in contrast to the average rate of 4,8% determined by a study on risk population in Kumasi in March 2010 (2). Syphilis seroprevalence was approximately 5%, thus slightly lower than the frequency of 6.5% determined in Ghana in 2008 (3). Since usually only about 50% of pregnant women are routinely tested for syphilis using a rapid test, some of the women at risk would have been missed. Plasmodium parasites were identified in nearly 10% of the study population; of these a quarter had a high parasitaemia. Screening on toxoplasmosis showed an IgG seroprevalence rate of more than 60%; of these, approximately 3% were IgM positive indicating a recent acute infection with Toxoplasma gondii. Brucella-specific antibodies have not been detected in the serum samples that have been tested so far. In conclusion, this cross-sectional survey indicates that pregnant women in a rural setting in Ghana face a risk to especially transmit GBS, as well as the pathogens causing syphilis, malaria and toxoplasmosis to their children. The results of this study will be used to initiate further prospective analyzes on these most prevalent pregnancy-related infections which will subsequently also include risk assessment leading to suggestions to local policy makers on how to manage the respective diseases.

V10 Too neglected to make it to the list: Management of chronic wounds in a resource poor setting

(M Vogel, Section Clinical Tropical Medicine, University of Heidelberg, F Bayi, Fairmed Cameroon, G Pluschke, Swiss Tropical and Public Health Institute, A Um Boock, Fairmed Cameroun, T Junghanss, Section Clinical Tropical Medicine, University of Heidelberg)

Wounds of any cause are among the most common medical conditions worldwide. In the absence of additional factors most wounds will spontaneously heal within several days. Irrespective of the cause basic hygiene and adequate nutrition are preconditions for wound healing. In a resource poor setting such as rural Cameroon the poverty-driven lack of these preconditions contributes to a high prevalence of chronic wounds. During a study on heat treatment of Buruli ulcer we observed remarkable success of a classic, universally available and inexpensive treatment protocol using saline, sterile gauzes, elastic bandages and temporarily povidone-iodine when consequently applied by a motivated team. We present four cases of extended chronic wounds, two caused by Buruli ulcer, one presumably by a Snake bite and one of unknown origin and a review of the literature. We hypothesize that chronic wounds may be the most neglected disease in resource poor settings (not restricted to but highly prevalent in tropical climates). Securing hygiene, a reliable supply of basic materials and intense staff teaching and motivation may be more relevant and achievable, than the usage of expensive “modern” wound dressing materials.

V11 Clinical epidemiology of skin conditions including Buruli Ulcer in a rural community of Southern Ghana

(M Schindler-Piontek, Section Clinical Tropical Medicine, University of Heidelberg, E Mensah-Quainoo, Ghana Healthe Service, Ministry of Health, L Seefeld, Faculty of Health Sciences, E Kenu, Fevers Unit, Korle-bu Teaching Hospital, D Yeboah-Manu, Noguchi Memorial Institute for Medical Research, Uni of Ghana, T Junghanss, Section Clinical Tropical Medicine, University of Heidelberg)

BACKGROUND Buruli Ulcer (BU) is a skin disease caused by Mycobacterium ulcerans. A significant proportion of patients develops severe, disabilitating contractures. The diagnosis of BU is difficult in particular in countries with limited resources. Most studies so far have focused on laboratory diagnostic tests and there is insufficient evaluation of the pre-test phase in which the medical professional has to make a first judgment solely based on clinical presentation. METHODS Patients suffering from skin conditions in a sub district of the Eastern Region, Ghana have been registered during a standardized door-to-door screening procedure and at the local Health Centre. For minor skin problems, which can be reliably diagnosed on clinical grounds (e.g. dermatomycosis) only basic epidemiological data has been registered. For all other the medical history, physical examination, photographical documentation of the skin lesion and the clinical classification as BU or non-BU have been documented. All cases considered non-BU have been transferred to the local health service facilities for treatment. They have been followed-up by the study team until the skin lesion resolved or a chronic (e.g. elephantiasis) or stable (e.g. lipoma) condition has been confirmed. RESULTS This study gives a detailed description of the challenges of standardized door-to-door screening in a highly diverse rural environment. It provides population denominator-based clinical epidemiological data on the prevalences of skin conditions in a rural community of Southern Ghana. It puts the clinical forms of BU into the context of other locally important skin diseases and contributes to improve clinical discriminatory power of BU diagnosis.

V12 Histopathology of Buruli ulcer skin lesions before and during antibiotic treatment: deeper insights into plaque and secondary lesions

(T Ruf, Swiss Tropical and Public Health Institute)

Buruli ulcer (BU) caused by Mycobacterium ulcerans is a chronic necrotizing skin disease. The current WHO treatment recommendation is a combination of rifampicin and streptomycin daily for 8 weeks. While antibiotic treatment has reduced recurrence rates below 2%, wound healing is strongly delayed in some of the patients. We conducted detailed histopathological studies to better characterize responses to antibiotic treatment and the nature of paradoxical reactions. In the case of non-ulcerative BU plaque lesions, we observed in half of all patients either an enlargement or an ulceration of lesions during antibiotic therapy. Histopathological analysis after completion of antibiotic treatment revealed persistence of extensive necrotic areas beside hallmarks of successfully treated BU lesions. While our data (1) demonstrate that the anti-mycobacterial effect of the antibiotic therapy is efficient, optimization of wound management, including surgical excision of necrotic tissue, is required to reduce the duration of hospital stays. Secondary BU lesions may occur at distant body sites during and after chemotherapy. Our analysis of such secondary lesions revealed hallmarks of inactive M. ulcerans infection. Emergence of secondary lesions may be the result of immune-mediated paradoxical reactions driven by mycobacterial antigens and immunostimulators at sites of clinically inconspicuous infection foci. Lesions that appear many months after completion of chemotherapy may, however, be an indication for immunological control of new infection foci after priming of the immune system during the successful treatment of the initial lesion (2).

V13 Genetic fine-typing of Mycobacterium ulcerans, the causative agent of Buruli ulcer

(K Röltgen, Swiss Tropical and Public Health Institute)

Buruli ulcer is a chronic, necrotizing infection of the skin and underlying tissue caused by Mycobacterium ulcerans. This emerging pathogen is characterized by minimal genetic diversity and a highly clonal population structure. Since clonal bacterial populations acquire genetic differences sequentially, they are good models to reconstruct evolutionary histories. However, transmission pathway and environmental reservoirs of M.ulcerans are not entirely explored. While analysis of large sequence polymorphisms and other genetic typing methods enabled a differentiation of world-wide M.ulcerans isolates into two major lineages (1), the exceptional genetic monomorphism of local M.ulcerans populations has hampered development of a genetic fine-typing technique for micro-epidemiological studies. Whole-genome comparison of seven M.ulcerans strains from the BU endemic Densu river valley of Ghana revealed the presence of a small number of single nucleotide polymorphisms (SNPs) between these isolates (2). This prompted us to develop a highly discriminatory SNP-based fingerprinting method for M.ulcerans strains isolated from BU lesions. This method enabled for the first time the identification of a range of M.ulcerans haplotypes within the same BU endemic area. Linking the obtained haplotype information with the patients` residences unveiled the clustering of unique M.ulcerans haplotypes within the Densu river basin. Our results show, that haplotypes do not spread within a short time over the entire BU endemic region, but rather form independent focal transmission clusters (3). Based on the results of this retrospective pilot study we expect that future longitudinal micro-epidemiological studies involving SNP typing may give deeper insight into transmission pathways and reservoirs of M.ulcerans.

V14 Prevention of tungiasis and the tungiasis-associated morbidity using an herbal repellent: a field study in rural Madagascar

(M Thielecke, Institut für Mikrobiologie und Hygiene, V Raharimanga, Institut Pasteur de Madagascar, CE Ramarokoto, Institut Pasteur de Madagascar, C Rogier, Institut Pasteur de Madagascar, V Richard, Institut Pasteur de Madagascar, HL Randriamanantena, Ministère de la Santé, A Schuster, Institut für Mikrobiologie und Hygiene, H Feldmeier, Institut für Mikrobiologie und Hygiene)

Tungiasis (sand flea disease) is a neglected tropical disease. It is endemic in many resource-poor populations in South America, the Caribbean and in sub-Saharan Africa, where it is associated with important morbidity. Since there is no effective drug treatment, prevention is the only way to prevent the sand flea disease. In a randomized, controlled intervention study in rural Madagascar two preventive measures were compared: the twice-daily application of Zanzarin® (a repellent based on coconut oil) on the feet and the distribution of closed shoes. A control group was left without any intervention. Over a period of 10 weeks, study participants were examined every two weeks and the number of newly penetrated sand fleas, the total number of sand flea lesions, the frequency of different developmental stages of T. penetrans, and tungiasis-associated clinical pathology were determined quantitatively. Compared to the control group, the penetration rate decreased by 22% in the shoe group and by 90% in the Zanzarin® group. The total number of embedded sand fleas decreased by 5% after the distribution of shoes. The regular application of Zanzarin® reduced the parasite load by 55%. The distribution of shoes reduced tungiasis-associated clinical pathology only marginally. After 10 weeks of regular application of the repellent clinical pathology had regressed almost completely. The study shows that regular application of a coconut oil-based repellent offers an excellent protection against sand flea disease. However, the distribution of shoes had only a marginal protective effect. This is probably related to the fact that shoes, without wearing socks, do not completely prevent the penetration of sand fleas and that in rural Madagascar gift shoes are not worn consistently.

P5 Detection of Viable M. ulcerans by Combined 16S rRNA Reverse-Transcriptase/IS2404 Quantitative Real-Time (q)PCR in Clinical Samples from Patients with Buruli Ulcer Disease.

(D Symank, Department of Infectious Diseases and Tropical Medicine, M Beissner, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, R Phillips, Komfo Anokye Teaching Hospital, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., Y Amoako, N Awua-Boateng, S Sarfo, Komfo Anokye Teaching Hospital, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., M Jansson, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, Munich, Germany., KH Herbinger, Medizinische Poliklinik, Ludwig-Maximilians-Universität München, T Löscher, O Adjei, Komfo Anokye Teaching Hospital, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU)

Background: Buruli ulcer disease (BUD) caused by Mycobacterium ulcerans is an infectious disease of the skin and adipose tissue. BUD is treated by standardized antimycobacterial chemotherapy with rifampicin (RMP) and streptomycin or RMP and clarithromycin over eight weeks. Cultures can confirm the presence of viable bacilli under treatment, but are not suitable to provide rapid results to clinicians. RNA assays targeting the 16S rRNA proved to be a reliable tool for the rapid detection of viable M. tuberculosis and M. leprae to monitor the treatment success

of individual patients. This study describes the development, validation and first application of a M. ulcerans specific combined 16S rRNA RT/ IS2404 real-time qPCR viability assay on clinical samples from BUD cases in Ghana. Methodology/Principal Findings: Thirty five suspensions from viable M. ulcerans cultures were subjected to combined DNA/RNA extraction and 16S rRNA RT/ IS2404 qPCR which detected DNA and RNA in all samples. The lower limit of detection (LD) determined by the standard curve method was two (IS2404) and six templates (16S rRNA) respectively. To investigate bacillary survival rates PANTA and LTM media were spiked with viable M. ulcerans, stored at 4°C/31°C and subjected to the RNA assay; bacilli survived at least four weeks. After heat-inactivation of M. ulcerans spiked PANTA-samples RNA positivity decreased significantly within 24 h whereas DNA was still detectable after seven days. Pre-treatment swab samples were collected from 21 clinically suspected BUD cases; 17 were IS2404 qPCR confirmed and RNA was detected in 13 patients (76.5%). Conclusion/Significance: The RNA viability assay proved to be efficient to detect viable bacilli in cultures and clinical samples. With respect to the considerable survival time of M. ulcerans in transport media we conclude that the assay is applicable under field conditions. After further clinical validation for other sample types (e.g. fine needle aspirates, FNA) as well as follow-up samples under treatment the assay will provide a valuable novel tool to monitor treatment efficacy and support clinical management of BUD patients with slowly healing lesions or secondary lesions.

P6 External quality assurance for the laboratory diagnosis of Buruli Ulcer disease in Togo

(K Huber, Ludwig-Maximilians-Universität, München, M Beissner, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, E Piten, Centre Hospitalier Régionale Tsévié, I Maman, INH, K Helfrich, Department of Infectious Diseases and Tropical Medicine LMU, C Mengele, Department of Infectious Diseases and Tropical Medicine, D Symank, Department of Infectious Diseases and Tropical Medicine, B Bidjada, L´Institut National d´Hygiene, F Vogel, Department of Infectious Diseases and Tropical Medicine, LMU, J Nitschke, DAHW, Togo Office, FX Wiedemann, DAHW, Togo office, KH Herbinger, Medizinische Poliklinik, Ludwig-Maximilians-Universität München, K Amekuse, DAHW, Togo office, K Badziklou, INH, ´LÍnstitut National d´Hygiene, A Kere, INH, LÍnstitut National d´Hygiene, A Diefenhardt, DAHW, Würzburg, B Kobara, PNLUB-LP, Togo, T Löscher, G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU)

Introduction: In January 2011 the National Hygiene Institute (INH), Lomé, assumed the role of a National Reference Laboratory for confirmation of Buruli ulcer disease (BUD) by microscopy and IS2404 PCR. To guarantee highest quality standards all laboratory methods followed standard operating procedures and external quality assurance was implemented involving local (INH) and external reference laboratories (Department for Infectious Diseases and Tropical Medicine [DITM], University Hospital, Munich). This study analyzes the performance of microscopy and PCR during the first year of implementation. Methodology/Principal Findings: After initial reading at Centre Hospitalier Régionale [CHR] Tsévie 31 slides from 28 suspected BUD cases were subjected to blinded re-reading at INH and DITM. Positivity rates were 35.4% (11/31, CHR), 51.6% (16/31, INH), and 48.4% (15/31, DITM). Before launching the reference laboratory at INH all PCR samples were tested at DITM. During a second, transitional phase, 45 samples from 30 patients were tested parallel at INH (dry-reagent based PCR) and DITM (conventional PCR). Positivity rates were 48.9% (22/45, INH) and 57.8% (26/45, DITM). All results were recorded in a web-based database; concordance rates were 83.9% (CHR-INH: 26/31), 90.3% (CHR-DITM: 28/31) and 96.7% (INH-DITM: 30/31) for microscopy, and 90.0% (INH-DITM: 40/45) for PCR. Conclusions/Significance: Compared to a previous study the concordance rate for microscopy (CHR-DITM) increased from 62% to 90%. In addition, the new reference laboratory identified 16% false negative results from CHR, thus EQA improved the quality of microscopy considerably. As EQA was conducted on parallel - not identical - samples the concordance rate for PCR between INH and DITM is considered adequate. Given a consistent concordance rate of 90% EQA of 20% of all samples with a positive and 100% of all samples with a negative INH result is envisaged for 2012.

P7 Comparative Study on Different DNA Amplification Techniques (LAMP, Real-Time and conventional PCR) for the Molecular Diagnosis of Buruli Ulcer Disease.

(M Beissner, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, R Phillips, Komfo Anokye Teaching Hospital, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., I Maman, INH, NY Awua-Boateng, Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR), Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., S Sarfo, Komfo Anokye Teaching Hospital, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., K Huber, Ludwig-Maximilians-Universität, München, D Symank, Department of Infectious Diseases and Tropical Medicine, M Jansson, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, Munich, Germany., A Wawezeczko, K Amekuse, DAHW, Togo office, J Nitschke, DAHW, Togo Office, FX Wiedemann, DAHW, Togo office, F Battke, Dr. Battke SCIENTIA GmbH, Life Science Services, Taufkirchen, Germany., K Badziklou, INH, ´LÍnstitut National d´Hygiene, O Adjei, Komfo Anokye Teaching Hospital, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., T Löscher, A Kere, INH, LÍnstitut National d´Hygiene, G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU)

Background: Since the introduction of standardized antimycobacterial chemotherapy laboratory confirmation of Buruli ulcer disease (BUD) became crucial for the clinical management. The WHO recommends PCR confirmation of at least 50% of clinically suspected BUD cases. Most national reference laboratories in endemic countries currently apply conventional PCR, whereas real-time qPCR is mostly restricted to international reference centers. Loop-mediated isothermal amplification (LAMP) assays are available for the diagnosis of several tropical diseases in field settings, however were not yet applied for BUD. Methodology/Principal Findings: IS2404 real-time qPCR and LAMP assays were established, validated on clinical samples and compared. 137 DNA extracts (from 63 FNA, 32 swab and 42 punch biopsy samples) derived from 91 suspected BUD cases from Ghana and Togo were subjected to conventional IS2404 PCR and IS2404 dry reagent based (DRB) PCR, IS2404 real-time qPCR and IS2404 LAMP. Analysis of LAMP amplicons was conducted by agarose gel-electrophoresis and SYBR® green I staining with direct UV transillumination. The overall positivity rates were 57.7% for conventional PCR and LAMP, and 67.9% for real-time qPCR. Conventional PCR yielded 79 positive samples, all of them were also positive in real-time qPCR and LAMP (100% concordance rate). LAMP amplicon analysis resulted in 100% concordance of gel-electrophoresis and direct SYBR® green mediated detection. Fifty-eight samples tested negative by conventional PCR had a negative LAMP result; however, 27 out of these samples were tested positive by real-time qPCR which corresponds to an additional diagnostic yield of 19,7%. Conclusions/Significance: While conventional IS2404 PCR still constitutes the gold standard at national reference laboratory level, our findings suggest that negative samples from patients with strong clinical evidence for BUD should be subjected to real-time qPCR at national (if available) or international reference laboratory level. According to our data the sensitivity of LAMP in combination with a simple SYBR green I based detection method can be considered comparable to conventional PCR assays. To prove the applicability of LAMP as novel first-line diagnostic tool, field–testing in peripheral laboratory settings is envisaged.

P8 Molecular Detection of Mutations of the rpoB-gene conferring Rifampicin Resistance in Clinical Samples of Patients with Buruli Ulcer Disease

(M Jansson, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, Munich, Germany., M Beissner, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, I Maman, INH, K Huber, Ludwig-Maximilians-Universität, München, D Symank, Department of Infectious Diseases and Tropical Medicine, A Wawezeczko, KH Herbinger, Medizinische Poliklinik, Ludwig-Maximilians-Universität München, J Nitschke, DAHW, Togo Office, FX Wiedemann, DAHW, Togo office, K Badziklou, INH, ´LÍnstitut National d´Hygiene, A Kere, INH, LÍnstitut National d´Hygiene, T Löscher, G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU)

Background: Buruli ulcer disease (BUD) caused by Mycobacterium ulcerans involves the skin and adipose tissue. Standardized antimycobacterial treatment consists of rifampicin (RMP) and streptomycin for eight weeks; oral regimens combining RMP and clarithromycin are currently under evaluation. Data on drug resistance among clinical M. ulcerans isolates are scarce. Due to the long generation time of M. ulcerans, conventional drug resistance testing conducted on culture isolates does not provide timely results for clinical management decisions. A pilot study on sequence based molecular drug resistance testing in Ghana revealed a low level of RMP resistance (0.9%). The efficiency of direct sequence analysis from whole genome extracts of clinical samples however, was significantly lower than from culture extracts, therefore improved sequencing techniques are required to support the clinical management of BUD. Methodology/Principal Findings: A novel, highly sensitive KOD-Polymerase based sequencing assay for the rpoB-gene was established and compared with the assay applied in the pilot study. A total of 21 whole genome extracts from IS2404 PCR confirmed clinical samples from Togo (swab, FNA and punch biopsy samples, n=7 each) were subjected to both assays. The sequencing efficiency was 18/21 (85.7%) for the novel assay compared to 11/21 (52.4%) for the previous assay which corresponds to an additional diagnostic yield of 33.3% of the novel technique. The limit of detection of the new assay was 50 copies of the rpoB-gene and the specificity was 100%. Large scale clinical validation is currently underway. Conclusion/Significance: The novel sequencing assay is highly sensitive and allows direct detection of mutations associated with RMP resistance in clinical samples. Therefore the assay can provide a valuable tool to support clinical management decisions. Especially clinically suspected treatment failures and recurrences who may harbour resistant M. ulcerans strains could benefit from e.g. immediate surgical intervention.

P9 Spontaneous Clearance of a Secondary Buruli Ulcer Lesion Emerging after Completion of Chemotherapy - a Case Report from Togo

(M Beissner, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, E Piten, Centre Hospitalier Régionale Tsévié, I Maman, INH, D Symank, Department of Infectious Diseases and Tropical Medicine, M Jansson, Department of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians University, Munich, Germany., J Nitschke, DAHW, Togo Office, K Amekuse, DAHW, Togo office, B Kobara, PNLUB-LP, Togo, FX Wiedemann, DAHW, Togo office, H Hoffmann, A Diefenhardt, K Badziklou, INH, ´LÍnstitut National d´Hygiene, A Kere, INH, LÍnstitut National d´Hygiene, T Löscher, G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU)

Background: Buruli ulcer disease (BUD) caused by Mycobacterium ulcerans is an infectious disease of the skin and soft tissue. Significant advances have been made in the treatment of BUD with the introduction of standardized antimycobacterial chemotherapy (rifampicin (RMP) and streptomycin (SM) or RMP and clarithromycin over eight weeks); recurrence rates are assumed to be below 2%. The Case: We present the case of a nine-year old boy from Togo who developed a secondary BUD lesion. The primary lesion, a nodule located at the left costal arch, was PCR-confirmed and treated with RMP and SM for eight weeks and the lesion healed completely within two months. After ten months, the patient presented with a secondary nodule at the back of the right thigh which ulcerated three weeks after emergence. Diagnostic samples from the secondary lesion were subjected to microscopy, conventional IS2404 PCR, IS2404 qPCR, culture and reverse transcriptase (RT) qPCR for detection of mycobacterial ribosomal 16S RNA. Microscopy revealed a scanty positive smear from a fine needle aspirate (FNA). While conventional IS2404 PCR remained negative for all samples, IS2404 qPCR detected M. ulcerans DNA in FNA samples. Culture and RT qPCR were negative, i.e. there was no evidence for viable bacilli. The lesion healed completely under conventional wound care within five weeks after emergence. Case Discussion: Secondary BUD lesions occurring several months after completion of treatment may represent delayed paradoxical reactions. Alternatively, secondary lesions – especially of the late-onset type - may be associated with new M. ulcerans infection or mycobacteria surviving antimycobacterial treatment. Resolution of these lesions has been attributed to immune-responses triggered by successful treatment of primary lesions. Whereas other previously reported cases with secondary BUD lesions were subjected to surgical excision, the Togolese case healed spontaneously. In the absence of evidence-based guidelines for reliable identification of late-onset secondary immune-mediated lesions and their clinical management it may be advisable to consider the potential of spontaneous healing under stringent clinical observation.

5 - Klinische Tropenmedizin 2

Chair/s: Marija Stojkovic, Joachim Richter
15. März 2012, 13:30 - 15:30 Uhr

13:30 - 13:50	K6	Bildgebende Diagnostik in Regionen mit begrenzten Ressourcen J Richter, Düsseldorf
13:50 - 14:15	V15	Ultraschall und Filariasis S Mand, Bonn
14:15 - 14:40	V16	Bildgebung und Echinokokkosen W Hosch, Heidelberg und Zürich (CH)
14:40 - 15:05	V17	Sonographie und Schistosomiasis J Richter, Düsseldorf
15:05 - 15:30	V18	Differential diagnosis of cystic echinococcosis M Stojkovic, Heidelberg

K6 Bildgebende Diagnostik in Regionen mit begrenzten Ressourcen

(J Richter, Universitätsklinikum. Heinrich-Heine-Universität Düsseldorf)

Unter den bildgebenden Verfahren, die für Industrieländer entwickelt wurden, stehen armen Ländern primär konventionelle Radiologie und Sonographie zur Verfügung. Schwerpunkt sonographischer Indikationen ist die Geburtshilfe und Gynäkologie: die Indikationen unterscheiden sich im Wesentlichen nicht von denen in Industrieländern. Einige Besonderheiten müssen beachtet werden: das Gestationsalter des Föten wird unterschätzt, wenn der Untersucher sich auf Referenzmesswerte aus Industrieländern stützt. Intrauterine Geschlechtsbestimmung des Ungeborenen können in bestimmten Kulturen problematisch sein. Uterusveränderungen schließen benigne und maligne Tumore, Bilharziose und Tuberkulose ein. Auch mammasonographisch müssen Infektionen wie Tuberkulose, Myiasis, Sparganose, Gnathostomose und andere Helminthosen, die primär oder ektop auftreten können, berücksichtigt werden. Eine bevorzugte Lokalisation adulter Würmer von Wuchereria bancrofti ist die weibliche Brust. Kardiale Vitien und Kardiomyopathien sind zum Untersuchungszeitpunkt häufig weit fortgeschritten. Das Spektrum von Erkrankungserscheinungen, die in tropischen oder subtropischen Regionen zu erwarten sind, muss um tropenspezifische Erkrankungen wie beispielsweise Chagaserkrankung, Amöbiasis, Bilharziose, Filariosen und Endomykoardfibrose erweitert werden. HIV-, HBV- und tuberkulose-assoziierte Veränderungen sind stets zu berücksichtigen. Portable Ultraschallgeräte ermöglichen Durchführung epidemiologischer Surveys. Auch in der Tropenmedizin werden technologische Innovationen weitere diagnostische Möglichkeiten eröffnen. Die Kombination von Schallkopfeinheiten mit handelsüblichen portablen Computern nutzt die finanziellen Vorteile der Massenfertigung von Bildschirmen und Tastaturen und wird dazu beitragen, den Preis portabler Sonographiegeräte in Zukunft weiter erheblich zu senken. Die digitale Datenspeicherung ermöglicht die Einsparung von Dokumentationskosten und den unmittelbaren Austausch von Befunden über das Internet. Mehr als bei allen anderen bildgebenden Verfahren ist bei der Sonographie zu hoffen, dass sie auch Menschen zur Verfügung stehen wird, deren finanzielle Möglichkeiten begrenzt sind. Um dieses Potential auszuschöpfen, bedarf es allerdings einer adäquaten Ausbildung des Personals und Maßnahmen zur Qualitätskontrolle.

V15 Ultraschall und Filariasis

(S Mand, UniKlinik Bonn, Mikrobiologie)

Lymphatische Filariose und Flussblindheit (Onchozerkose) durch Fadenwürmer sind mit > 200 Millionen infizierten Menschen in den Tropen endemisch. Etwa 1,3 Billionen sind dem Risiko einer Infektion ausgesetzt. In Deutschland kommen sie als importierte Infektionen vor, deren Diagnostik und Behandlung sich oft als schwierig und langwierig gestaltet. Trotz erfolgreicher Programme der Weltgesundheitsorganisation (WHO) gilt das auch für die Bekämpfung in den Tropen. Neue Forschungen über die in Filarien als Endosymbionten lebenden Bakterien der Gattung Wolbachia eröffnen neue Möglichkeiten für Therapien und Bekämpfung. Eine 4-6 wöchige Behandlung mit dem Antibiotikum Doxycyclin bewirkt eine Sterilisierung der weiblichen Würmer sowie ein späteres Absterben der Würmer. Diese Therapie bietet eine Alternative zu der mehrere Jahre regelmäßig zu wiederholenden Gabe von Ivermectin in der Behandlung der Onchozerkose oder Diethylcarbamazin (DEC) in der Behandlung der lymphatischen Filariose mit der Einschränkung, DEC nicht einsetzen zu können in Onchozerkose Co-Endemiegebieten in Afrika wegen des Risikos schwerwiegender Nebenwirkungen. Des Weiteren zeigten die Studien, dass Wolbachien an der resultierenden Immunpathologie beteiligt sind und dilatierte Lymphgefäße nach Doxycyclin Therapie rückbildungsfähig sind. Im Rahmen klinischer Studien wurde u.a. Ultraschalltechnik benutzt, um lymphatische Filariosen zu diagnostizieren und über mehrere Jahre makrofilarizide Effekte und Lymphgefäßveränderungen zu beobachten. Im Vortrag wird die Ultraschalldiagnostik als non-invasive Untersuchungstechnik an Filariose erkrankten Patienten vorgestellt. Es werden kurze Videoclips präsentiert in denen die typischen Bewegungsmuster der adulten Filarien in skrotalen Lymphgefäßen (sogen. Filaria Dance Sign) und Onchozerkomata zu sehen sind. Ebenso wird das unterschiedliche Ausmaß der Dilatation und das Ausmessen der dilatierten Lymphgefäße gezeigt. Des Weiteren werden die Limitation und Grenzen des Einsatzes von Ultraschalltechnik bei Infektionen mit Wuchereria bancrofti, Brugia malayi und Onchocerca volvulus präsentiert und diskutiert.

V16 Bildgebung und Echinokokkosen

(W Hosch, UniKlinik HD, Abt.Diagnostische u. interventionelle Radiologie)

Bildgebende Verfahren, insbesondere die Ultrasonographie, haben eine Schlüsselrolle in der Diagnostik und Therapie der zystischen Echinokokkose erlangt. Die unspezifische Klinik der Erkrankung und die nach wie vor unbefriedigende Sensitivität und Spezifität serologischer Methoden sind hierfür wichtige Gründe. Hierbei ermöglicht die differenzierte sonomorphologische Stadieneinteilung der WHO nicht nur in vielen Fällen eine sichere Primärdiagnose, sondern unterstützt auch wesentlich die Therapieentscheidung, Verlaufskontrolle und Rezidivdiagnostik. Dennoch bleiben oftmals differentialdiagnostische Unsicherheiten bestehen. Ziel des Vortrags ist es, die Bedeutung der Bildgebung für die Diagnostik und stadienspezifische Therapie der zystischen Echinokokkose zu erläutern und die anhand von Beispielen nahezubringen. Die Bildgebung der alveolären Echinokokkose wird ebenfalls dargestellt.

V17 Sonographie und Schistosomiasis

(J Richter, Universitätsklinikum. Heinrich-Heine-Universität Düsseldorf)

Die Sonographie wird für die Klärung von klinischen und epidemiologischen Fragestellungen eingesetzt. Klinische Stadien und sonographische Befunde: Im Akutstadium der Bilharziose unabhängig von der Schistosomenspezies können vergrößerte Lymphknoten im Portalhilus und eine Splenomegalie auftreten. Bei der chronischen intestinalen Bilharziose können Darmwandverdickungen und Darmpolypen nachgewiesen werden. Schwerpunkt sonographischer Untersuchungen in Klinik und Epidemiologie ist die hepatolienale Bilharziose. Die Portalfibrose führt zu typischen sonographischen Veränderungen, die nicht nur für die Diagnose, sondern auch für das Staging der Leberfibrose herangezogen werden. Darüber hinaus kann S. japonicum zu Interseptalfibrosen führen, die sich sonographisch als netzförmige echogene Veränderungen des leberparenchayms darstellen. Sonographisch kann die bilharziosebedingte portale Hypertension und damit das Risiko lebensbedrohlicher Ösophagusvarizenblutungen abgeschätzt werden. Echogene Gallenblasenwandverdickungen sind von chronischen Cholezystitiden anderer Ätiologie abzugrenzen. Bilharziose und chronische toxische und virale Hepatitiden betreffen nicht selten denselben Patienten, was die Stadieneinteilung der Leberfibrose erschwert. Typisch für die Blasenbilharziose sind fokale Blasenwandverdickungen, Massen, und/ oder Pseudopolypen. Bei Erwachsenen, im Einzelfall selbst bei Kindern, ist die Möglichkeit einer malignen Entartung zu berücksichtigen. Die Abgrenzung von einer urogenitalen Tuberkulose ist meist einfach. Genitalveränderungen umfassen Hydrozele, echogene Skrotal- oder Adnexmassen, Fibrosierungen und Verkalkungen der Samenbläschen und der Prostata. Bilharziöse Salpingitiden können zum Tubenverschluss führen. Epidemiologie: Eine WHO-Expertengruppe hat eine standardisierte Methodik zur Eruierung der bilharziosebedingten Morbidität entwickelt. Für epidemiologische Untersuchungen kann es hilfreich sein, nicht-spezialisiertes Hilfspersonal gezielt für sonograpische Untersuchungen auf bilharziosetypische Veränderungen auszubilden.

V18 Differential diagnoses of cystic echinococcosis

(M Stojkovic, Universitätsklinikum Heidelberg)

With modern imaging techniques the visualisation of space occupying lesions becomes more and more the staring point of patient's workup. Most commonly cystic echinococcosis (CE) produces space occupying lesions of the liver (70%) and the lung (20%) which can evolve from cystic to solid over time. Liver and intraabdominal cysts present the main differential diagnostic problem. A majority of CE cysts is found incidentally therefore in a first step it needs to be assessed whether clinical symptoms and signs are due to CE or other differential diagnoses are more likely. Furthermore risk factors for liver disease other than CE need to be evaluated. Ultrasound and magnetic resonance imaging (MRI) usually allow staging of CE cysts according to their viability (WHO classification). In patients where imaging is equivocal serology can be helpful to confirm the diagnosis.

6 - Medizinische Hilfe in Entwicklungsländern

Chair/s: Gisela Schneider, August Stich
15. März 2012, 16:00 - 18:00 Uhr

16:00 - 16:20	K6	NGOs und Forschung: Divergente Konzepte oder Chance für Synergien? A Stich, Würzburg Sebastian Dietrich, Ärzte ohne Grenzen Burkard Kömm, Deutsche Lepra- und Tuberkulosehilfe - DAHW Gisela Schneider, Deutsches Institut für Ärztliche Mission Lino Canete, Ärzte für die Dritte Welt Diskussion

K6 Clinical Medicine & Global Health: challenges and perspectives

A Stich, Missionsärztliche Klinik, Würzburg

Since several decades, Tropical Medicine as an outdated term of colonial times has been replaced by Global or International Health with a focus on resource-poor countries where health problems are barely determined by climate but by the lack of adequate human and economic resources, weak health systems and inequalities in health across countries, regions, communities, and populations. Major development needs and goals have been formulated in the eight Millennium Development Goals (MDG). Most of them are directly or indirectly related to health. Although the MDG represent the global development their focus is on low- and middle-income countries. On the other hand, the differentiation between health problems of the developing and the developed world has become more and more useless. In times of globalization, climate change, and emerging diseases the health problems of all countries are of global importance and concern. Despite recent success in the combat of poverty-related diseases (PRD) the major part of the high rates of morbidity and premature mortality in resource-poor countries is avoidable and still caused by classical PRD such as respiratory infections, diarrheal diseases, major infectious diseases (eg HIV/AIDS, Tb, malaria), malnutrition, perinatal and maternal conditions. Today, a new challenge for low and middle-income countries is the increasing double burden of disease caused by the dual burden of PRD and emerging 'modern' non-communicable diseases such as cardiovascular diseases, cancer, diabetes, and obesity. This is imposing a new burden to those countries with limited resources which are still struggling to meet the challenges of PRD. From the perspective of clinical medicine, the development of health care systems even in resource-poor countries has to build up and to link almost all clinical disciplines and all levels of the health care system. Only then, the population will benefit from the bigger part of the available medical progress. Adequate primary and community health care with a comprehensive coverage including rural and remote areas is the basis of any health care system. However, many health problems require more specialized personnel and facilities. Both are notoriously deficient or absent in resource-poor countries. Consequently there are large areas of neglect such as chronic diseases (eg cardiovascular, metabolic), cancer, traumatology, psychiatry, sensory disorders (eg eye diseases, hearing impairment), or occupational & environmental diseases. Education and training of health care personnel is essential for sustainable development. Advanced training of clinicians, researchers, and stakeholders is an important part of the co-operation of clinical and academic institutions between high- and low-income countries. However, brain drain due to dissatisfactory working conditions is an important problem and requires effective strategies such as adequate remuneration, appropriate infrastructure, and continuing education. In addition, it is critical to strengthen research capacities for PRD both in basic and clinical research. Pharmaceutical industry and large research institutions in the North have only very limited interests in PRD research. In recent years, several new initiatives have been established to initiate and finance research co-operations for the development of new diagnostic and therapeutic tools for PRD. Some of these product development partnerships have already succeeded in developing new treatments for tropical neglected diseases or new vaccines being affordable for resource-poor countries.

7 - Global Health Governance and Human Rights

Chair/s: Albrecht Jahn
15. März 2012, 10:45 - 12:30 Uhr

10:45 - 11:05	K7	Human Rights in the Context of the Millennium Development Goals G Ooms, Antwerp
11:05 - 11:25	K101	Human Rights based approaches in Global Health M Windfuhr, Berlin
11:25- 11:40	V150	Global Health Governance B Kümmel, Berlin
11:40 - 11:55	V19	Global Health Governance – Perspektive der Zivilgesellschaft A Wulf, Frankfurt
11:55 - 12:10	V20	The EU and global health – assessing the potential of an emerging actor R Bauschke, Heidelberg
12:10 - 12:30		Discussion

K7 Human Rights in the Context of the Millennium Development Goals

(G Ooms, ITG)

In the Millennium Declaration, the heads of State and Government of the United Nations' member states declared:"We recognize that, in addition to our separate responsibilities to our individual societies, we have a collective responsibility to uphold the principles of human dignity, equality and equity at the global level. As leaders we have a duty therefore to all the world's people, especially the most vulnerable and, in particular, the children of the world, to whom the future belongs." A great statement it was, but a confusing one too. In the end, who is responsible for what? If the "collective" responsibility of the international community is "in addition" or secondary to the "separate" responsibilities of states towards their inhabitants, what exactly is the primary responsibility? When and how an during how much time does the secondary responsibility kick in? Using a legal analysis based on international human rights law, GorikOoms proposes a global social protection regime that clarifies national and international responsibilities, allows to achieve the MDGs, and contains the conditions for national social protection regimes to flourish.

K101 Human Rights based approaches in Global Health

M Windfuhr, Berlin

V150 Global Health Governance

B Kümmel, Berlin

V19 Global Health Governance – Perspektive der Zivilgesellschaft

(A Wulf, medico international e.V.)

Am Aufstieg der Globalen Gesundheit zu einem prominenten Feld internationaler Politik seit der Jahrtausendwende waren zivilgesellschaftliche Akteure maßgeblich beteiligt: Ohne deren globalen Aktivismus zum Thema AIDS hätte es die UN Sonderversammlung im Jahr 2000, und in der Folge den milliardenschweren Global Fund to Fight AIDS, TB and Malaria, in dessen Vorstand die Zivilgesellschaft auch prominent mit Sitz und Stimme beteiligt ist, möglicherweise nie gegeben. Zugleich entstand über die letzten Jahre eine schwer übersehbare Zahl globaler Gesundheits-Initiativen, deren Implementierung unübersehbare Probleme schafft: auf Internationaler Ebene bei der Weltgesundheitsorganisation, ebenso wie bei der Implementierung auf Länderebene werden enorme Koordinationsressourcen erforderlich, die oft eine kohärente Gesundheitspolitik die sich an den Zielen „Gesundheit für Alle" orientieren sollte, verunmöglicht. Vor dieser Ausgangslage soll die aktuelle Reformdebatte bei der WHO aus einer zivilgesellschaftlichen Perspektive diskutiert werden. Die Debatte hat ihren Ausgangspunkt in einer administrativen und finanziellen Krise, in die die Organisation durch eine immer stärkere Abhängigkeit von extrabudgetären Zuschüssen und Gebern aus dem Bereich des „Philantrokapitalismus", besonders der Bill&Melinda Gates Foundation und internen Konkurrenzen um diese Mittel geraten ist. Sie ist aber auch zugleich eine Debatte um die in ihrer Verfassung von 1948 legitimierten Rolle der WHO als die wesentliche koordinierende und entscheidende zwischenstaatliche Institution für Globale Gesundheit geworden. Die Frage nach dem Einfluss profitorientierter Akteure auf die Politik der WHO im Konzept der „public-private Partnerships" und Möglichkeiten ihrer Eindämmung durch konsequente Regeln zum Umgang mit potentiellen individuellen und institutionellen Interessenkonflikten wird ebenso angesprochen wie die Coalition for Democratising Global Health Governance, die sich im letzten Jahr als Bündnis verschiedener public-interest NGOs und gesundheitsaktivsten gebildet hat, um den WHO Reformprozess kritisch zu begleiten und öffentlich zu machen.

V20 The EU and global health – assessing the potential of an emerging actor

(R Bauschke, Universität Heidelberg)

The European Union (EU) has only recently emerged as a prominent actor in the field of health policy and the promotion of global health. Despite the recent publication of a communication lining out the EU's role in global health (European Commission, 2010), the overall strategy of the European Commission as the key actor of increased European involvement in global health matters remains partially unclear. To gauge the potential of the European Union as a promoter of global health and develop a clearer understanding of its goals and overall approach, analysis has to go beyond the review of official documents. Approaching the issue from the perspective of political science and multi-level governance, the European (global) health agenda and the main strategic goals can be analyzed in greater detail. In addition, the potential internal and external factors influencing the realisation of European global health strategies must be assessed to develop a more clear-cut understanding of the European position. The main internal challenge for an effective role in global health can be seen in the possible trade-off between economic considerations and global health goals as well as the in-built tension between supranational governance and member states' preferences (Greer, 2006). The European Union (still) represents an economic and market-based organisation. Given the partially disputed mandate of the European Union in health policy matters (within the European Union) and the dominance of economic interests in European decision making it is argued, that Europe will most likely adopt a constructive yet more conceptual position in global health.

8 - Determinants of Global Health (environmental, socio-economical, cultural)

Chair/s: Sabine Gabrysch, Rainer Sauerborn
15. März 2012, 13.30 - 15:30 Uhr

13:30 - 13:50	K102	Health and Health Care in the Context of Climate Change R Sauerborn, Heidelberg
13:50 - 14:10	K8	Immigrant health: a window to global health K Hemminki, Heidelberg
14:10 - 14:25	V21	Klimawandel und Gesundheit W Zacher, Bonn
14:25 - 14:40	V22	Distance to care, facility delivery and early neonatal mortality in Malawi and Zambia S Gabrysch, Heidelberg
14:40 - 14:55	V23	Eco-Health – die nächste Stufe von Global Health? T Jänisch und S Gabrysch, Heidelberg
14:55 - 15:10	V151	Das Heidelberg Centre for the Environment – ein interdisziplinärer Zusammenschluß für die Umweltwissenschaften T Goeschl, Heidelberg
15:10 - 15:25	V24	Mistaken identities: underestimated and unrecognized biodiversity affects the treatment and control of neglected tropical diseases U Kuch, Frankfurt

K102 Health and Health Care in the Context of Climate Change

R Sauerborn, Heidelberg

K8 IMMIGRANT HEALTH: A WINDOW TO GLOBAL HEALTH

(K Hemminki, German Cancer Research Center)

Studies of migrants have provided valuable insight into the etiology of cancer pointing out to the importance of environmental factors. Taking cancer as an example, we review recent results on the Swedish immigrant studies and compare them to the literature from elsewhere. We used the nation-wide Swedish Family-Cancer Database to calculate standardized incidence ratios (SIRs) for defined cancers among immigrants and among their children compared to the native Swedes. The Database comprises 12 million individuals covering the Swedish population of the past 100 years. The Database records the country of birth for each subject. A total of 1.8 million individuals were foreign born, Finns and other Scandinavians being the largest immigrant groups. Large differences exist between the immigrant groups and native Swedes; the smallest difference (1.9-fold) was for myeloma and the largest was for melanoma (25-fold, for which East Asians had a rate of only a few % of the Swedish rate). For both myeloma and melanoma, native Swedes had the highest incidence. Native Swedes showed the lowest rate of no cancer. For some immigrant groups, rates far exceeding the Swedish rates were observed, e.g., liver ('other Africans') and thyroid cancers (Southeast Asians). Chileans show high rates not only for testicular cancer, but also for stomach cancer. In line with the previous publications, the differences to the native Swedes were smaller than in the parental generation. Comparison of the results between the first and the second generation immigrants suggest that the first two decades of life are important in setting the pattern for cancer development in subsequent life. Birth in Sweden sets the Swedish pattern for cancer incidence, irrespective of the nationality of descent, while entering Sweden in age 20s is already too late to influence the environmentally imprinted program for the cancer destiny.

V21 Klimawandel und Gesundheit

(W Zacher, Germanwatch)

In Durban ist es erneut nicht gelungen, das Kyoto-Protokoll zu verlängern oder zu erweitern. Das ist auch für die Gesundheit der Weltbevölkerung von großer Bedeutung, denn der Klimawandel wird für sie gravierende Folgen haben. Während sich Industrieländer durch Anpassungsprogramme vor den Folgen zu schützen beginnen, sind die Entwicklungsländer nur begrenzt dazu in der Lage. Die Hauptlast aber werden die am wenigsten entwickelten Länder, die so genannten „Least Developed Countries" (LDCs) zu tragen haben – obwohl historisch gesehen die Industrialisierung des Nordens die Hauptursache des Klimawandels ist, auch wenn die Schwellenländer jetzt immer mehr dazu beitragen. Obgleich der Klimawandel möglicherweise zu einem der größten Gesundheitsprobleme des 21. Jahrhunderts wird, spielt dieser Aspekt in der Klimadiskussion bisher kaum eine Rolle. Gleichzeitig gibt es neue Erkenntnisse, Klimaschutz im Hinblick auf Gesundheit zu fördern: Viele Maßnahmen, die Emissionen von Treibhausgasen reduzieren, werfen als unmittelbaren Nebeneffekt eine erhebliche „Gesundheitsrendite" ab. Dies ist nicht auf die Reduktion der – selbst ungiftigen – klassischen Klimagase zurückzuführen, sondern darauf, dass gleichzeitig eine Verminderung „kurzlebiger" Emissionen erfolgt. Letztere wirken sich direkt negativ auf die Gesundheit aus – ihre Verminderung reduziert Folgeschäden. Aber auch präventive Gesundheitsmaßnahmen können, als Nebenwirkung, zu erheblichen Klimaschutzeffekten führen. Wegen der Gesundheitsschäden durch den Klimawandel, aber auch auf Grund der positiven Gesundheitseffekte durch erfolgreiche Klimaschutzmaßnahmen, müssen diese Aspekte stärker in die Klimadiskussion Eingang finden. Der Gesundheitssektor trägt dafür – und für Klimaschutz – eine besondere Verantwortung, die bisher nicht wahrgenommen wird.

V22 Distance to care, facility delivery and early neonatal mortality in Malawi and Zambia

(S Gabrysch, Institut für Public Health, Universität Heidelberg, T Lohela, O Campbell, LSHTM)

Background While child mortality is decreasing, neonatal mortality remains high, particularly in Sub-Saharan Africa. Most neonates die in the first week of life (early neonatal mortality), often related to intra-partum complications. Thus access to good quality delivery care is one of the priorities to help reduce these deaths. Objectives We aimed to investigate the influence of distance to delivery care and level of care on neonatal mortality in rural Malawi and Zambia. To elucidate the pathway, we also studied the effects of distance and level of care on facility delivery, and the influence of facility delivery on neonatal mortality. Methods Data from the 2004 Demographic and Health Survey (DHS) in Malawi on 8842 rural newborns and from the 2007 DHS in Zambia on 3771 rural newborns were linked with data from national Health Facility Censuses conduc-

ted in 2002 in Malawi and in 2005 in Zambia using a Geographic Information System. Health facilities were classified according to their level of emergency obstetric care. We calculated straight-line distances to facilities of different levels and built multivariable logistic regression models adjusting for a wide range of confounders, using robust standard errors to take account of clustering. We studied the association between facility delivery and neonatal mortality stratified by percentage of facility delivery in the cluster to account for confounding by complications. Results Early neonatal mortality was 22 per 1000 in rural Malawi and 26 per 1000 in rural Zambia. Facility delivery was 52% in rural Malawi and 33% in rural Zambia. There was no association between distance to closest delivery care or level of care at the closest delivery facility and neonatal mortality in either country. The odds of facility delivery increased 3 times in Malawi and 1.4 times in Zambia for every 10 km increase in distance to the closest delivery facility. In Zambia, higher level of care of the closest facility was associated with higher facility delivery, but there was no such association in Malawi. Among facility births in Malawi, in clusters where facility birth was common (>85%) 38% of facility births were delivered in a hospital and 3.7% by C-section, while in clusters were facility birth was uncommon (>15%), 65% of facility births were in hospitals and 15% by C-section, indicating a dominance of emergency care-seeking in the latter setting. Similarly, in Zambia, in clusters with high facility delivery (>70%) 14% of facility births were in hospitals and 5.4% by C-section, whereas in clusters where less than 15% of births were in facilities, 32% of these were in hospitals and 14.5% of these were by C-section. In both Zambia and Malawi, facility births showed higher early neonatal mortality than home births (OR 1.3 and OR 2.4) in clusters where facility births are uncommon and thus most who do seek care in a facility are emergency cases. However, facility birth was associated with lower mortality than home birth (OR 0.6 and OR 0.3) in clusters where facility birth is very common and thus only a minority of facility births are emergencies. Discussion Very few studies so far have investigated the influence of distance and level of care on neonatal mortality, partly due to a lack of appropriate data. We overcame this limitation by linking national household and facility datasets. Although good geographical access to delivery care is strongly associated with facility delivery, and facility delivery seems to be associated with lower early neonatal mortality (among non-emergency care-seekers), we did not find any association between distance or level of care and early neonatal mortality in rural Zambia and Malawi. This may be due to methodological limitations, such as underreporting of early neonatal deaths in more remote populations, a problem identified in the 2004 Malawi DHS. Another explanation of our finding may be the low quality of services provided for newborn babies in most health facilities in Sub-Saharan Africa.

V23 Eco-Health – die nächste Stufe von Global Health?

(T Jänisch, Universitätsklinikum Heidelberg, S Gabrysch, Institut für Public Health, Universität Heidelberg)

Eco-Health oder Ecosystemhealth handelt von der Übertragung des Konzepts ‚Gesundheit' auf Ökosysteme. Damit wird nach dem Schritt von der klinischen Medizin auf die Bevölkerungsmedizin die Grenze der menschlichen Gesundheit und Krankheit überschritten. Gleichzeitig steht die Annahme im Raum, dass Gesundheit oder Ungleichgewicht von Ökosystemen Implikationen auf menschliche Gesundheit hat. Eco-Health ist zunächst eine wissenschaftliche Disziplin mit professioneller Vereinigung, Publikationsorgan und Konferenzen. Die Beschäftigung mit Infektionskrankheiten bildet einen Schwerpunkt in Eco-Health. Es wird nach zugrundeliegenden Mechanismen von neu auftauchenden Infektionskrankheiten („emerging infectious diseases") und der globalen Ausbreitung von Mikroben in bis dato naiven Host-Populationen geforscht („pathogen pollution"). Dabei wird Krankheiten in Tierpopulationen (Zoonosen) ebenso Bedeutung zugemessen wie Krankheiten in menschlichen Bevölkerungen. Theoretische Konzepte und Indikatoren für Gesundheit auf der Ökosystemebene sind in Entwicklung. Diese müssen adjustiert werden, so dass eine Vergleichbarkeit von Ökosystemen gewährleistet ist (z.B. bezüglich Klimazonen, marinen oder terrestrischen Biomen etc.). In komplexe Indikatoren (z.B. „environmental sustainability index" oder „environmental performance index") haben Ökosystem-Parameter Eingang gefunden und stehen dort neben menschlich zentrierten Gesundheitsparametern. Methodisch spielen Ansätze aus der mathematischen Simulation von Infektionskrankheiten oder von Klimaszenarien ebenso eine Rolle wie sozialwissenschaftliche Ansätze und Methoden der Evolutionsbiologie und Ökologie. Eco-Health bietet einen theoretischen Rahmen, der einer interdisziplinären Ausgestaltung bedarf und einen erweiterten Gesundheitsbegriff impliziert.

V151 Das Heidelberg Centre for the Environment – ein interdisziplinärer Zusammenschluß für die Umweltwissenschaften

T Goeschl, Heidelberg

V24 Mistaken identities: underestimated and unrecognized biodiversity affects the treatment and con trol of neglected tropical diseases

(U Kuch, Biodiversity and Climate Research Centre (BiK-F))

Although it is a widely recognized fact that a large proportion of the global burden of disease is caused or transmitted by non-human multicellular organisms, modern research on the health implications of biodiversity has long focused mainly on the genetic diversity of microbial and protozoan pathogens, especially in the context of resistance against pharmaceutical drugs and the development of new drugs. More recently, a growing body of literature has suggested various other, positive roles of biodiversity for health including 'dilution effects' or competition with pathogens and vectors, which tend to be higher in more species-rich environments, and health benefits from bio-discovery, e.g., medicinal plants or the medical use of naturally occurring peptides (see Chivian and Bernstein 2008; Keesing et al. 2010). However, if unrecognized and underestimated, biodiversity at the same time holds significant potential for health risks, treatment and control failures and the associated misallocation of resources. Thus, having a precise knowledge of medically relevant biodiversity is increasingly important in view of the rapid ongoing changes in human land use and, albeit somewhat slower, in global and regional climates. Here, I use examples from the globally neglected field of snake bite envenoming as well as insect vectors of two other neglected tropical diseases, lymphatic filariasis and visceral leishmaniasis, to show how medically-oriented biodiversity research that actively integrates multiple disciplines with clinical and public health perspectives can provide appropriate frameworks for improving public health planning and patient care.

9 - Training and Education for Global Health

Chair/s: Annelies Wilder-Smith, Peter Tinnemann
15. März 2012, 16:00 - 18:00 Uhr

16:00 - 16:15	V152	Overview to what constitutes Global Health in and outside Germany S Gabrysch, Heidelberg
16:15 - 16:30	V25	What courses, concepts and curricula exist in Europe for under-graduate and post-graduate students G Bois, Copenhagen
16:30 - 16:45	V153	Summer Schools - How can they complement students education? J Butenop, Würzburg und P Tinnemann, Berlin
16:45 - 17:00	V154	The range of GH topics and experiences teaching those at medical faculties M Knipper, Gießen und S Bösner, Marburg
17:00 - 17:15	V155	Required electives (Wahlpflichtfach) - GH from medical history to future plans W Bruchhausen, Bonn
17:15 - 17:30	V156	Bachelor/Master in GH A Wilder-Smith, Heidelberg
17:30 - 18:00		Discussion

V152 Overview to what constitutes Global Health in and outside Germany

S Gabrysch, Heidelberg

V25 What Courses, Concepts, and Curricula Exist in Europe for Undergraduate and Post-Graduate Students? The CSGH experience

(G Bois, University of Copenhagen, School of Global Health, M de Courten, University of Copenhagen, School of Global Health, S Villumsen, University of Copenhagen, School of Global Health, M Novrup, University of Copenhagen, School of Global Health, I Bygbjerg, University of Copenhagen, School of Global Health, F Konradsen, University of Copenhagen, School of Global Health)

Through the years, the Copenhagen School of Global Health established itself as an important player in Global Health education. Offering both undergraduate and graduate programs, CSGH runs multiples courses that attract students from across the world. The Summer Schools and the new MSc degree in Global Health are two excellent examples of Global Health education offered by CSGH. Two Summer Schools are run annually, both a School in International Health and one in Global Health. The School in International health - formerly the Course in Tropical Medicine and Hygiene - is an intensive three-week course that targets participants working with health provision in developing countries. The Summer School in Global Health Challenges provides a different approach and its objective is to introduce the students to the effects of globalisation on health and health systems internationally. The topics touched upon are diverse - development aid, economics, global actors, health policies, communicable and non-communicable diseases, migration, global health workforce brain-drain, conflict & refugees, human rights, poverty and access to healthcare - and provide students with a broad basic training in Global Health, acknowledging its multi-disciplinary nature. These courses were created after a debate in the Danish Medical Journal over the lack of pre-graduate education on Global Health at the University, triggered by a small group of medical students that then cooperated with the Institute of International Health. The courses are now running for the 7th year, and attract over 200 students annually from various backgrounds and nationalities. This year we are offering in addition a module on pre-departure training, preparing students for placements in low-resource settings. The brand new MSc in Global Health will be launched in September 2013 and aims to have 50% international students. It is a 2-year research-based, cross-disciplinary MSc that has been built with an holistic view on Global Health, combining strong problem solving and communication skills with rigorous training. The first year consists of basic training with the possibility to specialise in different areas through the second year. The program also contains compulsory fieldwork and the possibility for internships and studies abroad. Graduates will be able to analyse the many interrelated determinants impacting on human health and disease ranging from individual to society, with a focus on the global perspective - including politics, policies, trade and economy, frameworks, socio-cultural issues, and climate changes.

V153 Summer Schools - How can they complement students education?

J Butenop, Würzburg und P Tinnemann, Berlin

V154 The range of GH topics and experiences teaching those at medical faculties

M Knipper, Gießen und S Bösner, Marburg

V155 Required electives (Wahlpflichtfach) - GH from medical history to future plans

W Bruchhausen, Bonn

V156 Bachelor/Master in GH

A Wilder-Smith, Heidelberg

10 - Tropische Viren und Tollwut

Chair/s: Christian Drosten, Thomas Jänisch
15. März 2012, 10:45 - 12:30 Uhr

10:45 - 11:15	K9	Rabies: management of encephalitis and new oppotunities in prophylaxis M Warrell, Oxford (UK)
11:15 - 11:35	K10	Virus ecology and epidemic preparedness - what can be learnt from reservoir studies? C Drosten, Bonn
11:35 - 11:55	K11	The impact of an empirically based clinical classification for Dengue T Jänisch, Heidelberg
11:55 - 12:10	V26	Chickungunya virus (CHIKC) seroprevalences at different altitudes after an epidemic in Madagascar NG Schwarz, Hamburg
12:10 - 12:25	V27	Prevalence of liver disease and risk factors in patients seeking medical care in Kumasi, Ghana T Feldt, Hamburg
	P10	Documentation of clinical data and its transference from Ebola and Marburg wards: Health care workers' experiences and preferences S Bühler, Zürich (CH)
	P11	Distribution and ecology of dengue vector mosquitoes along an altitudinal transect in Nepal U Kuch, Frankfurt

K9 Rabies: management of encephalitis and new opportunities in prophylaxis

(M Warrell, University of Oxford, UK)

Among patients claimed to have survived rabies, only 4 have recovered. 3 were infected by American bat viruses which differ from dog rabies strains and for one the source is unknown. The data indicate that intensive care therapy is appropriate in selected patients only, to avoid unnecessary suffering and waste of resources. Experimental live attenuated rabies viruses are currently the most promising potential therapy. Travellers to dog rabies enzootic countries are well advised to receive rabies pre-exposure prophylaxis. Problems of immediate travel, incomplete or uncertain vaccination can be addressed in the light of immunogenicity data. Although failure to receive vaccine is often due to the cost, the economical potential of intradermal (ID) vaccination has still not been realised. Intramuscular post-exposure rabies vaccine is wasteful and unaffordable for many. 15 years since their introduction, economical ID post-exposure regimens are used in very few countries. The WHO currently recommended 2-site ID regimen is not economical for use in rural areas where 80% of rabies deaths occur in Asia and Africa. Most countries using it demand higher potency vaccine, indicating that they do not have complete confidence in the method. Increased intradermal doses are sometimes used for selected patients. However new methods of ID post-exposure prophylaxis should be more practical, especially in rural areas or small clinics, and have a wider safety margin. A primary post- exposure regimen: 4-site ID (days 0, 7 28) and if previously immunised, a single day 4-site ID regimen could be adopted in Europe without contravening pharmaceutical regulations. The present global economic climate and increased recognition of practical and rigorous scientific aspects might enable improvements in rabies prophylaxis.

K10 Virus ecology and epidemic preparedness - what can be learnt from reservoir studies?

(C Drosten, Instutute of Virology, Universitätsklinikum Bonn)

Emerging viruses attract a lot of new and revived interest. There is much enthusiasm in the field for issues such as "virus discovery" or "prediction of the next pandemic" while more fundamental questions in virus ecology are sometimes sidelined. Currently we do not know of general ecological drivers of host switching, mechanisms underlying the evolution of virulence, and viral determinants causing host range plasticity. Using examples from our ongoing research mainly on Coronaviruses and Paramyxoviruses, I will try to address some of these aspects.

K11 The impact of an empirically based clinical classification for Dengue

(T Jänisch, Sektion Klinische Tropenmedizin, Universitätsklinikum Heidelberg)

Dengue has acquired global significance in the last 20-30 years. Problems with the DHF/DSS-classification have become an issue as the disease has spread globally. The revised dengue classification in the dengue guide of 2009 (World Health Organisation) has been welcomed by many researchers and clinicians in dengue endemic countries. It was the result of a chain of evidence including a large prospective study enrolling more than 2500 patients across 7 endemic countries. Since then other studies have looked at the effectiveness of the revised classification. The impact of the revised dengue classification is in the areas of clinical management, pathophysiology and vaccine studies, and surveillance and harmonization of reporting. Warning signs for severe disease have been empirically validated and are subject to further research. Compared to the DHF/DSS classification, the endpoint of severe disease within the revised classification is better defined without admixture of relatively mild disease and without missing severe cases (high sensitivity and specificity with regard to a reference based on medical interventions). The acceptance and user-friendliness of the revised classification is high according to a multi-centre study carried out in 18 countries in Latin America and Southeast Asia. Overall, the clinical epidemiology of dengue is similar across countries in Latin America and Southeast Asia. Despite the ongoing geographical spread into regions with different immuno-epidemiological backgrounds dengue appears to be one single disease entity. The revised classification allows evaluating the existence of different clinical syndromes and their overlap analogue to clinical syndromes in Malaria. The main clinical syndromes are plasma leakage, bleeding tendency, and organ manifestations. Plasma leakage is the leading cause of severity and can be documented in a considerable number of cases without other severity markers.

V26 Chikungunya virus (CHIKV) seroprevalences at different altitudes after an epidemic in Madagascar

(NG Schwarz, Bernhard-Nocht-Institut für Tropenmedizin, M Girmann, Bernhard Nocht Institute for Tropical Medicine, Hamburg, N Randriamampionona, Université d'Antananarivo, A Bialonski, Bernhard Nocht Institute for Tropical Medicine, D Maus, Bernhard Nocht Institute for Tropical Medicine, C Krefis, Bernhard Nocht Institute for Tropical Medicine, J Schmidt-Chanasit, Bernhard Nocht Institute for Tropical Medicine, ML Randriarison, Centre de Sante de Base Urban de Mananjary, J May, Bernhard Nocht Institute for Tropical Medicine, R Rakotozandrindrainy, Université d'Antananarivo)

Introduction Recently (2005/2006), CHIKV led to epidemics in La Réunion, Mauritius, Mayotte, on the Seychelles and, combined with dengue virus (DENV), around the Madagascan city of Toamasina. Rift valley fever virus (RVFV) infections increased in Madagascar during the rainy seasons 2008 and 2009. A CHIKV outbreak at the South-Eastern coast of Madagascar reached its peak in Feb¬ruary and abated in March 2010. We report the retrospective assessment of clinical features and serological markers of CHIKV, DENV and RVFV infections at 6 different geographical locations on different altitudes. Methods and materials Antenatal clinics were visited between May and July 2010. A venous blood sample was taken from 1244 women for Immunofluorescence assays (IFA) screening for anti-CHIKV-IgG, anti-DENV-IgG, and anti-RVFV-IgG antibodies. Samples from Mananjary were additionally screened for anti-CHIKV-IgM and anti-DENV-IgM antibodies. Results The anti-CHIKV-IgG seroprevalence was 45% in Mananjary and 23% in Manakara, both at the coast. The corresponding anti-DENV-IgG seroprevalence was 17% and 11% respectively. Only 4 women had anti-RVFV-IgG antibodies. All anti-DENV-IgM tests for samples from Mananjary were negative; the seroprevalence of anti-CHIKV-IgM was 27.5% (2-3 months after the outbreak). Anti-CHIKV-IgG-seroprevalences in altitudes between 450 m and 1300 m were low (0-3%). Joint pain and stiffness was reported by 78% of the anti-IgG-seropositives from the coast; 21% did not report any symptoms. CHIKV infection was associated with body weight (p=0.001, test for trend). The only mosquito protective measures that were used frequently were bednets (70.3%), however without protective effect. Discussion The outbreak was an isolated CHIKV epidemic without relevant DENV co-transmission. It did not spread upwards and inbound. CHIKV infection was associated with higher body weight, Bednet use had no influence on the risk of chikungunya infection. This is in line with Ae. albopictus and Ae. aegypti biting humans preferentially during daytime.

V27 Prevalence of liver disease and risk factors in patients seeking medical care in Kumasi, Ghana

(T Feldt, Bernhard-Nocht Institut für Tropenmedizin, R Phillips, Komfo Anokye Teaching Hospital, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana., S Stauga, Universitätskrankenhaus Hamburg-Eppendorf, G Bedu-Addo, Komfo Anokye Teaching Hospital, Directorate of Medicine, S Ehrhardt, Bernhard Nocht Institute for Tropical Medicine, G Burchard, Medical Department I, University Medical Center Hamburg-Eppendorf, S Schmiedel, Medical Department I, University Medical Center Hamburg-Eppendorf)

Background: Chronic liver disease and associated pathologies are highly prevalent in sub-Saharan Africa (1,2), but reliable epidemiological data are widely lacking. At the same time, cirrhosis of the liver is associated with a high morbidity and mortality, especially in resource-poor countries with limited medical care. Data on the burden of disease of chronic liver disease from sub-Saharan Africa would be important for screening and intervention strategies. Using transient elastography, we investigated the prevalence of chronic liver disease and pertinent risk factors in patients seeking medical care at a large university teaching hospital in the Ashanti region of Ghana. Methods: After giving informed consent, we recruited patients hospitalized in one of the internal medicine wards or presenting to the various internal medicine outpatient clinics of the Komfo Anokye Teaching Hospital in Kumasi, Ghana. Exclusion criteria included known active malignancy, known acute hepatitis, and inability to give informed consent or to comply with study procedures. All patients underwent a structured interview to record medical and socioeconomic data, including common risk factors for liver disease. Medical history and clinical data was extracted from medical records. A clinical examination was performed to assess signs of liver disease. Liver stiffness (LS) was measured using the FibroScan© 402 device (Echosens, Paris) using the standard probe. The median value of 10 successful measurements, expressed in kilopascal (kPa) was considered valid if the success rate was ≥60% and the interquartile range was ≤30%. Cut offs used were 7.2kPa to diagnose significant fibrosis (METAVIR score F≥2), and of 11kPa to diagnose cirrhosis (F=4), as recommended by Marcellin et al.(3). Patients with LSM ≥7.2kPa and an equally large, randomly selected control group of patients without evidence of chronic liver disease (LSM ≤6kPa) underwent ultrasound (US) of the abdomen using a standardized USG protocol, and blood sampling for biochemical analysis. Liver stiffness measurements (LSM) were conducted by trained physicians, who were blinded to clinical or laboratory parameters. Since interference with LSM is known, patients with elevations of ALT serum levels ≥3 times the upper limit of normal (ULN), patients with right lobe hepatic tumors, and patients with ascites (except minimal) were excluded from further analysis if LSM was ≥7.2kPa but US examination did not indicate chronic liver disease (fibrosis or cirrhosis)(4). Results: In total, 518 patients were recruited, comprising 400 (77.2%) outpatients and 118 (22.8%) hospitalised patients. Mean age was 48.5 (±15.2) years and 297 (57.3%) were female. Liver disease was previously known in 6.7% of patients, HIV and hepatitis B virus infection was known in 19.2% and 12.8% of patients. On clinical examination, 101 patients (19.5%) had any clinical sign associated with liver disease. Most common findings were lower leg edema (11%), hepatomegaly (7.2%), Jaundice (4.9%) and clinical evidence of ascites (4.7%). According to US examination, 50 patients (22%) had signs of liver fibrosis, and 29 (12.7%) of cirrhosis. Liver stiffness measurement (LSM) could be successfully performed in 500 patients. Reasons for failure in 18 patients (3.5%) were obesity (n=10), discharge (n=3) or death (n=1) before LSM could be performed, ascites (n=2) and technical problems (n=2). Five patients with LSM >7.2kPa who had confounding factors possibly interfering with LSM were excluded from further analysis, as indicated above. One patient had ALT levels >3 times the ULN, three patients had moderate or severe ascites, and one patient had a large right lobe hepatic tumor. In the remaining 495 patients, the overall prevalence of CLD (LSM ≥7.2kPa) was 23.8% (n=118), and of liver cirrhosis (LSM ≥11kPa) 12.1% (n=60). The prevalence of CLD and cirrhosis was higher in hospitalized patients vs. outpatients (CLD: 42.1% vs. 18.9%, p<0.001, LC: 28% vs. and 7.8%, p<0.001) and higher in male compared to female patients (CLD: 34.3% vs. 16%, p<0.001, LC: 18.8% vs. 7.1%, p<0.001). Male hospitalised patients had the highest prevalence of CLD (47%) and LC (28.9%). US had a specificity of 91.1%, a sensitivity of 62.5% to diagnose CLD, as defined by LSM; positive predictive value was 87.5% and negative predictive value 70.8%. Univariate analysis identified the following risk factors for CLD: history of alcohol abuse (relative risk (RR) 4.80, p<0.001), hospitalisation (RR 2.91, p<0.001), male gender (RR 2.78, p<0.001), known hepatitis B virus (HBV) infection (RR 2.20, p=0.008) and regular intake of herbal preparations (RR 1.96, p=0.01). Age, level of education, socioeconomic factors, religion, health insurance status, and current weekly alcohol consumption were not statistically significant risk factors. A multivariate logistic regression analysis identified only known HBV infection (p<0.001), hospitalisation (p=0.013), history of alcohol abuse (p=0.014) and male gender (0.018) as risk factors for CLD. Conclusions: We found that liver disease is very common in patients seeking medical care in Ghana, particularly in hospitalised patients, with chronic liver disease in 42.1% and liver cirrhosis in 28% of patients. Independent risk factors for CLD include known HBV infection, hospitalisation, history of alcohol abuse and male gender. This data might provide important guidance for screening practices in resource-poor settings in sub-Saharan Africa, where diagnostic options are limited. LSM might be a suitable screening tool for chronic liver disease in resource-poor countries and can be especially useful for the detection of early stages of CLD, which are usually not clinically evident, but have a good prognosis if the underlying disease is treated. More data on the spectrum of underlying conditions, as well as treatment and prevention strategies which are suitable for developing countries are needed.

P10 Documentation of clinical data and its transference from Ebola and Marburg wards: Health care workers' experiences and preferences

(S Bühler, Universität Zürich, P Roddy)

Background: The Filoviruses, Marburg and Ebola virus, are highly infectious and get transmitted from person to person by direct physical contact or by contact with blood, body fluids or organs (1,2). Case fatality ranges between 25% and 90% (1). Apart from human infections following exposure with imported non-human primates or laboratory accidents, filoviral haemorrhagic fever (FHF) outbreaks have been restricted to sub-Saharan Africa. During past Marburg and Ebola outbreaks, documentation of clinical data from isolation wards concerning treatment strategies and patients' clinical development has been limited (3-5) and many data were lost because clinical records were considered contaminated and were destroyed. Until now there is no consensus on the best, i.e. safest and easiest way for documenting clinical data and transferring them from the Marburg/Ebola ward to the outside world. This has hampered the understanding of clinical manifestations of the disease as well as the evaluation of different treatment strategies. Good quality clinical data are needed to increase knowledge about clinical manifestations, which may allow refinement of clinical case definitions. They are also a prerequisite for assessing treatment effectiveness for Filovirus infections. This study explores advantages and disadvantages of various methods of collecting clinical data from Marburg or Ebola wards. Materials and methods: Firstly, a review of the literature was performed to identify evidence of data documentation and transfer. Published evidence was searched for in electronic databases (Cochrane, Medline, Pubmed, Embase) and through a compendium on Filoviruses [6]. Unpublished (grey) literature (unpublished reports, conference abstracts) was retrieved through a targeted website search of relevant agencies involved in the control of Filovirus outbreaks. Semi-structured interviews with health care workers who have been involved in Filovirus outbreaks in Africa and with persons with experience of data documentation and transfer from high risk areas (isolation wards or high biosecurity laboratories) in Europe were conducted. Interviewees were asked about ways of data documentation and transfer they had seen in use, but they were also asked to propose new methods. After the semi-structured interviews were completed methods of data transfer that have been in use in sub-Saharan Africa and proposed methods were categorized into "Methods that do not require electricity", "Methods that do require electricity in the field, but not inside of the isolation ward" and "Methods that require electricity inside the isolation ward". The methods for data transfer were ranked by interviewees in these different categories depending on need of electricity. Results: The literature search identified no guideline or standardised procedure for data transfer out of isolation wards, and no consensus on the safest and easiest way for documenting clinical FHF data and transferring them from the FHF ward to the outside world appears to exist. Interviews identified as main reasons for limited documentation of clinical data lack of interest during earlier outbreaks, other priorities during outbreaks, difficult working conditions, limited time and lack of standardized forms. It was confirmed that data were often lost because clinical records had to be destroyed (burnt or decontaminated). Interviewees identified a range of approaches for transferring data outside and proposed new methods for data transfer. In the ranking of methods for data transfer two methods were identified as the most appropriate approaches: „Dictating over the fence" in situations where there is no access to electricity and „use of a Personal Digital Assistant" in areas with electricity. Conclusion: Based on the findings, a set of key recommendations for the improvement of data collection from Filovirus high risk areas in future outbreaks were developed. These are: (a) use of standardized forms for data documentation in every outbreak and data documentation by a second person following the one doing the clinical work should become a standard procedure. (b) Data transfer: Due to several concerns revealed in the interviews the use of a high technology solution should be considered with scepticism and not recommended as a first choice. Someone coming in and copying the clinical data without touching anything could be made a standard procedure. A photographer walking in and taking pictures of clinical files and the use of a scanner could be evaluated as an approach for data transfer where electricity is available. (c) Further research on safety of UV-light disinfection of Filoviruses on paperwork should be conducted.

P11 Distribution and ecology of dengue vector mosquitoes along an altitudinal transect in Nepal

(M Dhimal, Biodiversity and Climate Research Centre (BiK-F), Emerging and Neglected Tropical Diseases Unit, I Gautam, Tribhuvan University, K Aryal, Nepal Health Research Council, P Dhakal, Nepal Health Research Council, R Tuladhar, Tribhuvan University, A Kreß, Biodiversity and Climate Research Centre (BiK-F), R Müller, LOEWE Biodiversity and Climate Research Center Frankfurt am Main, R Allwinn, Institute of Medical Virology, Johann Wolfgang Goethe University, R Pun, Everest International Clinic and Research Centre, BD Pandey, Everest International Clinic and Research Centre, CL Bhusal, Nepal Health Research Council, U Kuch, Biodiversity and Climate Research Centre (BiK-F))

Dengue fever is an emerging viral disease of rapidly growing public health concern in Nepal where it was first reported in 2004 [1]. A sero-epidemiological study in the Terai region of Nepal showed that 28% of febrile patients were positive for dengue virus in 2007 indicating that it is firmly established in this region [2]. An entomological survey in the Kathmandu Valley revealed the presence of the two globally invasive mosquito vectors of dengue virus, Aedes aegypti and Aedes albopictus, in Kathmandu in 2009 [3]. This renders the capital of Nepal, which is situated at about 1300 m above sea level and inhabited by approximately 1.5 million people, vulnerable to local dengue virus transmission. The convergence of these events and facts and a major dengue fever epidemic in the lowlands of Nepal in 2010 prompted us to conduct a study on the occurrence, distribution and breeding habitats of dengue vectors along an altitudinal transect of central Nepal. We collected mosquitoes of all life stages using ovitraps, inspection of water containers and BG-Sentinel traps (Biogents) in localities of the Terai (Birganj), inner Terai (Hetauda), mid-hill (Kathmandu), hill (Ranipauwa) and high mountain zones (Dhunche) from September 2011 to February 2012. All potential breeding habitats in the study areas were screened in and around houses for the presence or absence of Aedes larvae. Adult Aedes aegypti and Aedes albopictus were collected only from Parsa, Hetauda and Kathmandu during this time, but larvae of both species were found in all study locations including the high mountains. Our data show that potential vectors of dengue virus already occur up to at least 2000 m in the Nepal Himalayas and are established in the capital Kathmandu, suggesting that dengue virus transmission may occur locally if cases with viraemia are introduced.

11 - HIV

Chair/s: Arne Kroidl, Christoph Hemmer
15. März 2012, 13:30 - 15:30 Uhr

13:30 - 13:55	K103	HIV/ AIDS 2012 - current status and unsolved problems HG Kräusslich, Heidelberg
13:55 - 14:20	K12	HIV in Africa – Treatment and Prevention A Kroidl, München
14:20 - 14:45	K13	Klinisch-wissenschaftlicher Nord-Süd Dialog - Esther Partnerschaft: Limbe/ Cameroon - Rostock/ Germany E Reisinger, T Kinge, W Acam, C Hemmer
14:45 - 15:00	V28	Why do patients interrupt antiretroviral treatment? Experiences from lighthouse Clinic, Lilongwe/ Malawi J Lübbert, Heidelberg
15:00 - 15:15	V29	Correlates of non-transmission of human immunodeficiency virus type 1, in serologically discordant couples in Accra, Ghana Y Affram, Accra
	P12	Hematological changes in infants exposed to AZT-containing prophylaxis for prevention of mother-to-child-transmission of HIV in Tanzania S Theuring, Berlin
	P13	Study of the effects of the Tat protein of HIV-1 on memory cells and on the control of viral reactivation in in vivo models of latent infections F Nicoli, München
	P14	Zidovudine exposure during pregnancy increases mitochondrial DANN levels in placenta of HIV-1 infected Tanzanian women and in umbilical cord of their infants S Theuring, Berlin

K103 HIV/ AIDS 2012 - current status and unsolved problems

HG Kräusslich, Department Infektiologie, Universitätsklinikum Heidelberg

K12 HIV in Africa – Treatment and Prevention

(A Kroidl, Klinikum der Uni München)

East and Southern Africa remains the area most heavily affected by the HIV epidemic accounting for 34% of all people living with HIV, resided in 10 countries of Southern Africa. Scale out of HIV preventive interventions and therapeutic services have been substantial over the past decade leading to declining incidence (25%) and AIDS related mortality rates (20%) between 2001-2009 (UNAIDS) in focused countries. Antiretroviral treatment (ART) coverage reaches 80% (Botswana, Namibia, South Africa), however, scale out of reliable services especially in rural areas is greatly challenged by infrastructural and administrative constrains. Countries are implementing earlier ART initiation recommendations (CD4 <350 cells/µl) into national programs, however, are faced by financial constrains as the need for costly viral load monitoring and second line treatments is increasing. Prevention of accumulating drug resistance through viral load monitoring and timely treatment switch is needed as transmitted drug resistance rates are increasing especially in areas with early ART roll-out (12% Kampala, Uganda). ART as prevention to reduce HIV transmission is effective as shown in studies with serodiscordant couples and is supported as a public health intervention through modeling, accompanied by feasibility concerns for the “real world”. A first trial (TasP) to assess the test and treat concept on a public health basis is currently initiated in an area with highest HIV incidence rates (KwaZulu-Natal, South Africa). HIV transmission prevention through pre-exposure prophylaxis (PreP) with topical (microbicides) or systemic antiretroviral substances in HIV non infected individuals have shown promising results (Caprisa, iPrEx, TDF2) indicating overall protective efficacy of 40-60%. However, other trials have recently shown conflicting and disappointing results (Voice, FEM-PrEP). In conclusion, antiretroviral therapy is an accessible reality in many African areas saving lives and preventing transmission. Feasible long term strategies and public health interventions are imposing challenges.

K13 Klinisch-wissenschaftlicher Nord-Süd Dialog - Esther Partnerschaft: Limbe /Cameroon - Rostock / Germany

(E Reisinger, T Kinge, W Acam, C Hemmer)

The ESTHER partnership program of the European Union was initiated in 2002 by Bernard Kouchner, foreigen minister of France. Partnerships are concluded between universities in Europe and referral hospitals in developing countries. The goal of the South-North ESTHER partnership is capacity building in the referral hospitals of the partners in the South, in order to improve access to high-quality services for patients infected with HIV. The Limbe Regional Hospital is the tertiary referral hospital for the Southwest Region, Cameroon. About eight percent of the two million inhabitants of the Southwest Region are HIV positive, and about one-third of the patients in the 200 hospital beds are HIV positive. The HIV day clinic of the Limbe Regional Hospital sees 12,000 patients annually. The partnership between the Limbe Regional Hospital and the Dept. of Tropical Medicine and Infectious Diseases of the Rostock University was concluded in 2008. The five goals of the partnership are 1) human capacity building, 2) development of laboratory capacity, 3) research on HIV and opportunistic infections, 4) policy development, and 5) knowledge transfer. Human capacity building is achieved through the bidirectional exchange of physicians, laboratory technicians, nurses, and medical students, and through contributions of partners from Rostock in Limbe. Technical capacity building includes the implementation of a new PCR laboratory, of a basic bacteriological laboratory and of new staining methods for the detection of pa¬ra-sites in the Limbe Regional Hospital. Research projects include the doctoral theses on the prevalence of Pneumocystis jirovecii colonization in HIV-positive and HIV-negative subjects, the prevalence of Hepatitis B, Hepatitis C, and HIV in hospital staff members, the analyses of the course of the 2004 Cholera epidemic in Douala, the effects of policy changes on the care of patients with tuberculosis and HIV in the Littoral region, and the course of extended drug resistant

V28 Why do patients interrupt antiretroviral treatment? Experiences from Lighthouse Clinic, Lilongwe/Malawi

(J Luebbert, University of Heidelberg, I Makwiza, Reachtrust, H Tweya, Lighthouse Trust, C Feldacker, Lighthouse Trust, S Phiri, Lighthouse Trust, F Neuhann, University of Heidelberg, Institute of Public Health)

Background By the end of 2009, more than 190,000 patients were started on antiretroviral therapy (ART) in Malawi. The rapid scale-up towards achievement of universal ART access faces a number of challenges including improvements to retention in care. We aimed to explore conditions contributing to treatment interruption in patients at Lighthouse clinic, Lilongwe/Malawi. Methods At the Lighthouse a real-time electronic data system (EDS) identified patients with treatment interruptions. We approached a subset of patients who decided to return to care for interviews. A total of 26 (15 females) in-depth interviews were conducted in the local language Chichewa, recorded and transcribed. Interview guidelines focused on basic knowledge about ART, social support systems and actual reasons for treatment interruption. Data analysis was based on verbatim transcripts using a thematic framework approach. Results All interviewed patients had sufficient treatment literacy. Despite knowledge of possible consequences, all patients experienced conditions that resulted in treatment interruption. The most common motive was attributed to the category “travel” (62%) with distinct subcategories “travel for work”, for “family issues” and “lack of money for transport”. Secondly, 8 (31%) patients described health system related conditions like loss of health passport, missing transfer letters and perceived or experienced discriminatory behaviour of health care workers as the explanation for delayed return to care. Furthermore, self-reported health conditions including adverse effects, general health problems, pregnancy and inability to cope with adherence requirements were also mentioned as drivers of treatment interruption. Conclusions To adequately address the challenges of supporting patients on life-long therapy, strategies must be developed that prevent or reduce discontinuation of ART. Decreasing the number of people who interrupt treatment will also reduce virological consequences such as treatment failure. Improved adherence counselling sessions require provision of problem-solving-strategies for common challenges like planned travel and health system related barriers to care.

V29 CORRELATES OF NON-TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS TYPE 1, IN SEROLOGICALLY DISCORDANT COUPLES IN ACCRA, GHANA.

(Y Affram, DEPARTMENT OF MICROBIOLOGY; UNIVERSITY OF GHANA MEDICAL SCHOOL (UGMS), COLLEGE OF HEALTH SCIENCES, UNIVERSITY OF GHANA.)

It is known that some couples of HIV-1 infected partners remain persistently uninfected despite repeated sexual exposure to the infection. These couples are called HIV discordant couples. The mechanisms underlying HIV resistance still remain unclear. Several factors may account for HIV-1 resistance; these could be viral, immune or host genetic factors. In this study a comparative analysis of the viral and host genetic characteristics of 34 heterosexual couples comprising of 13 serologically discordant (SDC) and 21 concordant heterosexual couples (SCC) attending the Fevers Unit of the Korle-Bu Teaching Hospital of Ghana in 2007 was done. The viral factors examined consisted of viral load and differences in HIV subtypes which is known to affect infectivity of the virus. The host genetic factors included coreceptor polymorphisms such as CCR5 Delta 32, CCR2-64I and DC-SIGN (dendritic cell-specific ICAM-3 grabbing non-integrin) genotypes. Five milliliters of blood was taken from couples. CD4 counts were determined with the FASCount Instrument. HIV-1 antibody testing was done using Abbott HIV-1/2 Determine assay and confirmed with Innolia HIV-1/2 assay. HIV-1 negative serostatus of discordant partners was confirmed by polymerase chain reaction (PCR) using primers for the pol and long terminal repeat region (LTR) of HIV-1. DC-SIGN, CCR2 and CCR5 genotyping PCRs were done using DNA extracted from whole blood. Viral load and HIV Subtyping were determined by Real-time PCR and Heteroduplex Motility Assay respectively using RNA extracted from plasma. Data was analysed with the students T-test. HIV antibody testing with PCR confirmation revealed 8 SDC and 24 SCC this was because some of the HIV-1 discordant couples by serology were found to be concordant by HIV-1 PCR. The average CD4 count of HIV positive partners of SDCs (246 cells/mm3) was higher than that of SCCs (153 cells/mm3) but the difference between their mean CD4 counts was not statistically significant (p=0.106). PCR bands from CCR5 genotyping showed only 1 patient as heterozygous to the CCR5 Delta 32 allele. The rest of the couples had wild type CCR5. The allele frequency of CCR2 64I was 37.5% and 12.5% in seronegative and seropositive partners of SDCs respectively. None had CCR2 64I homozygous allele. SCCs had an allele frequency of 31.8% with 4.5% having two mutant alleles. The allele frequency of CCR2 64I in the entire study population was 30%. There were no mutations in DC-SIGN. The average viral load of SDCs (21,100 viral copies/ml) was significantly lower (p<0.0001) than that of SCCs (180,000 viral copies/ml of plasma) and the virus subtypes were mainly the circulating recombinant forms CRF02_AG. The virus subtype as well as the CCR5 genotypes and DC-SIGN could not explain HIV-1discordance in this study. The factors that could account for HIV-1 non-transmission were the viral load in the partner who cannot infect and the CCR2 genotypes.

P12 Hematological changes in infants exposed to AZT-containing prophylaxis for prevention of mother-to-child-transmission of HIV in Tanzania

(S Theuring, Charité-Universitätsmedizin Berlin, J Ziske, Institut für Tropenmedizin, J Sewangi, Regional AIDS Control PRogram. MoHSW, I Kirsten, Institut für Tropenmedizin, F Dugange, Kyela District Hospital, MoHSW, G Harms, A Kunz, Institut für Tropenmedizin)

Introduction: For prevention of mother-to-child-transmission (PMTCT) of HIV, Tanzanian guidelines since 2007 recommend combination prophylaxis including zidovudine (AZT) monotherapy during pregnancy, single-dosed nevirapine (sdNVP) at labor onset, and AZT plus lamivudine during and after delivery. Infants receive sdNVP and AZT for 1-4 weeks. Emerging drug toxicity in infants poses a relevant concern, but has little been analyzed in the context of this PMTCT regimen. We therefore assessed hematological alterations in AZT-exposed infants in Kyela, Tanzania. Methods: A cohort of infants born to HIV-positive women having received antenatal AZT ≥4 weeks (n=42, group 1), and infants whose HIV-positive mothers had not taken antenatal AZT (n=58, group 2) was established at Kyela District Hospital. According to national guidelines, infants of group 1 received AZT for 1 week postnatally, whereas infants of group 2 were given a prolonged 4-week AZT tail. Infant blood samples were taken at birth, week 4-6 and week 12, and complete blood counts were evaluated and compared between the two groups. Results: At birth, group 1 infants with prenatal AZT-exposure showed significantly lower median hemoglobin (13.3 g/dl vs. 15.2 g/dl, p<0.001 t-test) and red blood count (3.7 vs. 4.5, p<0.001 t-test) levels compared to group 2 infants. Also, at birth, frequency of anaemia (47% group 1 vs. 11% group 2, p=0.001 Fisher’s exact test) and neutropenia (52% group 1 vs. 26% group 2, p<0.05 Fisher’s exact test) was higher in those antenatally AZT-exposed infants. However, 4-6 weeks after birth, group 2 infants with prolonged postpartum AZT intake showed lower mean neutrophile granulocyte counts (1.7/mm3 vs 3.2/mm3 in group 1, p=0.001 t-test), and neutropenia was also more frequent in group 2 infants (33% vs 9% in group 1; p=0.04 Fisher’s exact test). Twelve weeks after birth, no hematological differences between the two groups could be observed. Conclusions:

AZT-exposure during and after pregnancy entailed significant hematological alterations in infants. Yet, those changes seem to be of a transient nature. Considering that there is a tendency in most recent national and international PMTCT guidelines towards a prolonged duration of AZT intake during pregnancy, more research involving larger cohorts is highly desirable to further analyze the impact of AZT-containing regimens on infant health outcomes.

P13 Study of the effects of the Tat protein of HIV-1 on memory cells and on the control of viral reactivati on in in vivo models of latent infections.

(F Nicoli, LMU, V Finessi, University of Ferrara, Department of Biochemistry and molecular Biology, A Montagnani, University of Ferrara, Department of Biochemistry and molecular Biology, E Gallerani, University of Ferrara, Department of Biochemistry and molecular Biology, M Sicurella, University of Padova, Department of Histology, Microbiology and Medical Biotechnology, F Destro, University of Padova, Department of Histology, Microbiology and Medical Biotechnology, F Sforza, University of Ferrara, Department of Biochemistry and molecular Biology, P Marconi, University of Ferrara, Department of Experimental and Diagnostic Medicine, Section of Microbiology, A Caputo, University of Padova, Department of Histology, Microbiology and Medical Biotechnology, R Gavioli, University of Ferrara, Department of Biochemistry and molecular Biology)

Tat is a regulatory protein of HIV released by acutely infected cells [1]. Tat displays some immunomodulatory properties like inducing DC maturation [2-3] and affecting the antigen processing [4-5]. Extracellular Tat induces integrin-mediated signals [2-3, 6] resulting in the activation of Akt and in the induction of Bcl2 expression [7-8], both pathways directly involved in the maturation of memory T cells. The aim of the study was to assess if the Tat protein can modulate the memory phase of the immune response resulting in the control of a latent infection. C57BL/6 mice were infected with HSV1 and, at day 44 post infection (p.i.), part of them was treated with the Tat protein. HSV1-specific cellular responses were measured at days 64 and 108 p.i. by IFNg ELIspot against the immunodominant CTL epitope SSIEFARL. At day 108 p.i. the number and phenotype of SSI-specific CD8 T lymphocytes was assayed throughout Dextramer staining and flow citometry. During the course of the experiment, the health status of mice was checked and clinical signs of viral reactivation were noted. IFNg cellular responses were comparable among groups at both time points. Dextramer staining revealed an higher number of SSI-specific CD8 T cells in Tat treated mice, even if not statistically significant; moreover, the percentages of memory cells on both total and SSI-specific CD8 were higher in Tat-treated mice (p=0,008 and p=0,03 respectively). Finally, Tat treated mice showed a dramatic control of viral reactivation: 6% of Tat treated mice showed signs of clinical reactivation vs the 65% of Control mice. The administration of the Tat protein during the “memory-phase” of a model viral latent infection affects the phenotype of the CD8 compartment, resulting in a strong control of the viral re-activation This study gives new insights in the use of Tat as adjuvant in combined subunit vaccines.

P14 Zidovudine exposure during pregnancy increases mitochondrial DNA levels in placenta of HIV-1 infected Tanzanian women and in umbilical cord of their infants

(S Theuring, Charité-Universitätsmedizin Berlin, A Kunz, Institut f[r Tropenmedizin, N von Wurmb-Schwark, Institut für Rechtsmedizin, J Sewangi, Regional AIDS Control PRogram. MoHSW, J Ziske, Institut für Tropenmedizin, I Kirsten, Institut für Tropenmedizin, P Mbezi, PMTCT Services Mbeya Region, MoHSW, A Hauser, Institut f[r Tropenmedizin, F Dugange, Kyela District Hospital, MoHSW, A Katerna, Institut für Rechtsmedizin, G Harms)

Background: Zidovudine (AZT) forms a constitutent part of the recommended regimens for prevention and treatment of HIV-1 infection. At the same time, both AZT and HIV-1 infection itself are known to have a potential of inducing mitochondrial damage in exposed individuals. In this study, we analyzed the impact of AZT-exposure on mitochondrial alterations in HIV-infected women and their infants in Kyela, Tanzania. Methods: Placenta and umbilical cord samples were obtained from a mother-child-cohort in Kyela District Hospital at delivery. Mitochondrial DNA (mtDNA) levels in placentas of HIV-1 infected women with and without prenatal AZT exposure, and in the umbilical cords of their AZT-exposed/unexposed infants were quantified using real-time PCR. Furthermore, we checked for the most common mitochondrial deletion in humans, the 4977 base pair deletion (dmtDNA4977) as a marker for mitochondrial stress. Results: In total, 83 women fulfilled the inclusion criteria. 30 women had taken AZT (median duration 56 days; IQR 43-70 days) while 53 women had not taken AZT during pregnancy. The two groups did not differ with regard to clinical parameters like maternal CD4-cell count or weight of mother and infant. The median mtDNA levels in placentas and umbilical cords of women (311 copies/cell) and infants (190 copies/cell) exposed to AZT were significantly higher than in samples of AZT-unexposed women (187 copies/cell; p=0.021) and infants (127 copies/cell; p=0.037). The dmtDNA4977 was found in placentas of one woman of each group and in 3 umbilical cords of AZT-unexposed infants but not in umbilical cords of AZT-exposed infants. Conclusions: Antenatal AZT intake of HIV-infected pregnant women did not increase the risk for dmtDNA4977. Maternal AZT exposure before delivery seemed to elevate mtDNA levels in placentas and umbilical cords, possibly by positively influencing the course of maternal HIV-1 infection. Further research involving larger cohorts will be needed to gain deeper insight into this interesting finding.

12 - Nicht-übertragbare Erkrankungen

Chair/s: Eva Kantelhardt, Helmut Scherbaum
15. März 2012, 16:00 - 18:00 Uhr

16:00 - 16:20	K14	Einflüsse von Transitionsprozessen auf die Epidemiologie nicht übertragbarer Erkrankungen H Scherbaum, Tübingen
16:20 - 16:35	V30	Geburtverletzungen und Blasenscheidenfisteln in Afrika J Wacker
16:35 - 16:50	V157	Surveillance Study on Female Cancer in Ethiopia - A Research Collaboration between the Universities Addis Ababa and Halle/Saale E Kantelhardt, Halle/Saale
16:50 - 17:05	V31	Verbal Autopsy-assessed Mortality of Women in Western Ethiopia A Führer, Halle
17:05 - 17:20	V158	Der klinische Verlauf von 1500 Patientinnen mit Mammakarzinom am Universitätskrankenhaus in Addis Ababa, Äthiopien P Trocchi, Halle-Wittenberg
17:20 - 17:35	V33	FGM: wo stehen wir - hier wie "dort"? C Zerm, Herdecke

K14 Einflüsse von Transitionsprozessen auf die Epidemiologie nicht übertragbarer Erkrankungen

(H Scherbaum)

Das Konzept der „Epidemiologischen Transition“, das Anfang der 1970er Jahre von A. Omran veröffentlicht wurde, fand in den folgenden Jahrzehnten in zahlreichen Bereichen der Gesundheitspolitik Eingang. Diese Theorie diente als Erklärungsmodell für den Wandel in den Morbiditäts- und Mortalitätsraten der Länder als Folge sozioökonomischer Entwicklungen und verbesserter Gesundheitsversorgung. Hiernach könne der Übergang eines an Infektionskrankheiten vorherrschenden Zeitalters hin zu einer Epoche mit gehäuften nicht-übertragbaren Erkrankungen (NCDs) festgelegten Stadien zugeordnet werden. Das Konzept der „Epidemiologischen Transition“ wird bis in die heutige Zeit kontrovers diskutiert und auch unter einer komplexeren „Health-Transition“-Perspektive können die teilweise sehr unterschiedlichen epidemiologischen Profile und auch gegenläufige Trends innerhalb von Ländern und verschiedener Bevölkerungsgruppen nicht ausreichend erklärt werden. Dies gilt auch für die „hohen NCD-Raten und ein fortbestehendes gehäuftes Auftreten von Infektionskrankheiten; diese doppelte Krankheitsbürde“ führt in den Gesundheitssystemen vieler Länder zu immensen Belastungen. Mit Blick auf bestimmte NCD-Krankheitsgruppen werden in diesem Beitrag aktuelle Daten zu deren Bedeutung in wirtschaftlich ärmeren Ländern präsentiert und auf Transitionsprozesse eingegangen. Hierbei wird erörtert, inwieweit diese Transitionen die Epidemiologie der NCDs sowie die demographischen und gesellschaftlichen Rahmenbedingungen zu beeinflussen vermögen.

V30 Geburtverletzungen und Blasenscheidenfisteln in Afrika

(J Wacker, Fürst Stirum Klinik, Bruchsal)

Einführung:
In den zurückliegenden Dekaden der Diskussionen um die Frauenheilkunde und Geburtshilfe in den sich entwickelnden Ländern wurde der Dialog von der Sorge um die hohe mütterliche Mortalität bestimmt. Allgemein muß davon ausgegangen werden, dass die hohe Zahl mütterlicher Todesfälle bis zum Jahr 2012 nicht in den erhofften Ausmaß gesenkt werden kann. Die Gründe hierfür sind vielfältig: Vernachlässigung der klinischen und kurativen Medizin, schlechte Infrastruktur, Armut und mangelnde Organisation des Distriktgesundheitssystemes. Engagierte Hebammen und Geburtshelfer kümmern sich in zunehmendem Maße um die Versorgung schweren Geburstverletzungen und insbesondere um die operative Behandlung der Blasenscheidenfisteln.

Daten:
Nach Kees Waaldijk entstehen im ländlichen Raum Afrikas bei 2 - 3 pro 1.000 Geburten diese Vesico – vaginalen Fisteln (VVF). Bedingt durch den protrahierten Geburtsverlauf wird der vorangehende Kindsteil auf das untere Drittel der Harnblase gepresst, so dass in Folge dieser Kompression zwischen fetalem Kopf und mütterlichen Beckenring Druckgeschwüre und eine Minderdurchblutung der Harnblase entstehen. In zahlreichen Vorarbeiten wurde auf die Strategien zur Verbesserung der Versorgung der VVF und zur Prävention derselben hingewiesen.
In einer prospektiven Untersuchung wurde durch Priska Schindler in einer Pilotstudie in dem Einzugsgebiet von Ouagadougou gezeigt, dass neben den vesico – vaginalen Fisteln auch andere Geburtsverletzungen wie höhergradige Dammverletzungen, Vernarbungen und andere Verletzungen des äußeren weiblichen Genitale die Gesundheit der Frauen beeinträchtigen. Frau Esther Maier führt zur Zeit eine prospektive Untersuchung in Burkina Faso durch, um die Häufigkeit von Senkungszuständen des weiblichen Genitale und insbesondere die Häufigkeit des Vorfalles der Gebärmutter fest zu stellen.

Klinische Konsequenzen:
Die vorliegenden Daten zeigen, dass zur Zeit keine ausreichende Versorgung der oben genannten, schweren Folgen von Geburten in Burkina Faso sichergestellt ist. Aufgrund der bisherigen Erfahrungen ist die Errichtung operativ ausgerichteter Kliniken und eine flächendeckende Zusammenarbeit derselben notwendig, um den betroffenen Frauen zu helfen. Wege und Projekte, um diese Mißstände zu beseitigen, werden aufgezeigt.

V157 Surveillance Study on Female Cancer in Ethiopia - A Research Collaboration between the Universities Addis Ababa and Halle/Saale

E Kantelhardt1
1Klinik und Poliklinik für Gynäkologie, Martin Luther-Universität Halle
Kantelhardt EJ*1, Trocchi P2, Zerche P1, Breitenstein E1, Fuehrer A1, Braun GA1, Thomssen C1, Stang A2, Mathewos A4, Adamu A3, Bogale S4,
*presenting author, 1 Klinik und Poliklinik für Gynäkologie Martin Luther Universität Halle-Wittenberg, 2 Institut für Klinische Epidemiologie Martin Luther Universität Halle-Wittenberg, 3 School of Public Health Addis Ababa University/Ethiopia, 4 Radiotherapy Center Addis Ababa University/Ethiopia

Background:
An increasing burden of non-communicable diseases in developing countries has so far only been marginally approached. Since 2010, more women die of breast cancer than due to pregnancy-related causes.

Materials and methods:
Collaboration between the Radiotherapy Center and School of Public Health (University Addis Ababa/Ethiopia) and the Dpt. of Gynecology and Inst. of Clinical Epidemiology (University Halle/Germany) has been established. Ethical approval from both institutions was obtained.

Objectives
1. Prevalence data from the urban setting are obtained from the pathologists case registries in Addis Ababa.
2. A prospective cancer registry is established in the context of the East African Registry Network.
3. Details on clinical course of the disease are given from the follow-up of the cancer registry in the Department of Radiotherapy in Addis Ababa (data from 5 years retrospectively).
4. A modified version of the “Indepth network´s” verbal autopsy questionnaire is combined with the approach of sisterhood method to interview randomly selected women in rural Ethiopia.
5. Breast cancer specimen are characterized by pathological and biochemical methods.

Conclusion
Oncologic diseases are emerging also in countries with limited resources. We collect urban and rural data from hospital based information, pathologic registries and by structured interviews. Data-collection and evaluation of cancer patients in this setting is feasible.

V31 Verbal Autopsy-assessed Mortality of Women in Western Ethiopia

(A Führer, Klinik und Poliklinik für Gynäkologie Martin Luther Universität Halle-Wittenberg, W Tariku, Aira Hospital, C Thomssen, A Stang, E Kantelhardt, Klinik und Poliklinik für Gynäkologie > Martin Luther-Universität Halle)

Objectives: This study aimed to assess the cause-specific mortality among women in Western Ethiopia. Methods: A modified version of the Indepth-Network´s Verbal Autopsy-questionnaire was used to interview women above the age of 15 about their sister´s causes of death. A total of 202 deaths was put to analysis both by Physician´s review and InterVA. Finally one single set of diagnoses was assembled following a preset algorithm. Results: Infectious diseases claimed 28%, followed by diseases of the circulatory system (20%) and cancers (13%). Conclusion: Further research to explain the high number of chronic diseases in this low-risk population should be conducted.

V158 Der klinische Verlauf von 1500 Patientinnen mit Mammakarzinom am Universitätskrankenhaus in Addis Ababa, Äthiopien

P Trocchi1
1Institut für Klinische Epidemiologie Martin Luther Universität Halle-Wittenberg

There is little information on the course of disease of breast cancer patients receiving standardized treatment in low-resource settings. This study evaluates 1500 consecutive breast cancer patients presenting from 2006-2010 at the Radiotherapy center Addis Ababa. This is the only institution offering standardized radiotherapy and systemic therapy for a considerable number of breast cancer patients referred from all over Ethiopia. Follow-up data on distant recurrence is shown. Data-collection and evaluation on survival of patients in this setting with very limited resources is feasible.

V33 FGM: wo stehen wir - hier wie "dort"?

(C Zerm, Frauenarzt, Herdecke)

Von FGM sind weltweit 3-4x mehr Menschen betroffen als von HIV/AIDS. Daran haben bisher die jahrezehntelangen Bemühungen zu deren Überwindung nur wenig geändert. Unwissenheit, Überlebensprobleme, taktische Angst oder Desinteresse der Regierungen, Re-Fundamentalisierung vieler Gesellschaften und der unzureichende Wille zur Realisierung von gender equality haben, wahrscheinlich in dieser Reihenfolge, zu diesem inakzeptablen Ergebnis geführt.
Die Auseinandersetzung mit FGM hat grundsätzlich zwei Zielrichtungen: Prävention und Betroffenenversorgung – in den Prävalenzländern wie auch in den Ländern „des Nordens“. Erfolgreiche Strategien in den Prävalenzländern können/sollten als Anregungen für Akteure auch in Europa/USA genutzt werden, vor allem für die Arbeit mit und in den Migrantencommunities. Seit einigen Jahren weitet sich die Informations- und Betreuungsarbeit in Deutschland aus, wenn auch immer noch anfänglich.

13 – Helminthosen

Chair/s: Achim Hörauf, Hinrich Sudeck
16. März 2012, 10:45 - 12:30 Uhr

10:45 - 11:05	K15	Onchocerciasis and lymphatic filariasis - new drugs and implementation A Hörauf, Bonn
11:05 - 11:20	V34	Significant drop of worm burden after treatment of lymphatic filariasis in Kyela District in South West Tanzanie I Kroidl, München
11:20 - 11:35	V35	Prävalenz chronischer Hepatitis B und C - Koinfektionen bei Patienten mit hepatolienaler Schistosomiasis in Tansania J Hillner
11:35 - 11:50	V36	Epidemiology of cutaneous larva migrans in urban Amazonia F Reichert, Berlin
11:50 - 12:05	V37	Healing of cutaneous larva migrans lesions after a single dose of ivermectin is accompanied by changes in cytokine patterns in the peripheral blood A Schuster, Berlin
12:05 - 12:20	V38	Influence of helminth infections on cytokine levels of individuals with allergic surrogate markers in South West Tanzania (MATHIS-Study) I Kroidl, München
	P15	High density Taenia solium infection in pigs in sub-Saharan Africa as a source of material for diagnostic and research tools V Schmidt, München
	P16	Immunology of Helminth Infections in relation to HIV-1 susceptibility and disease progression in Mbeya Region, Tanzania M Chachage, Mbeya (TZ)

K15 Onchocerciasis and lymphatic filariasis – new drugs and implementation approaches for elimination

(A Hörauf, Institut für Medizinische Mikrobiologie, Immunologie und Parasitologie, Universitätsklinik Bonn)

Onchocerciasis and lymphatic filariasis (LF) comprise more than 37 and 120 Mio. infected people, respectively. They are the two filarial infections that have been targeted by mass drug administration (MDA) of larvicidal drugs with the long-term goal of global elimination. For LF, the Global Alliance for the Elimination of LF (GAELF), a partnership between the World Health Organisation, governments of endemic countries and many public and private donors, has distributed more than 3.4 billion doses of antifilarial drugs diethylcarbamazine, ivermectin and albendazole between 2000 and 2010 to a targeted population of 897 million. While some countries have now ended their MDA programs and are conducting surveillance to verify interruption of transmission, others have not yet started their programs, making the goal of global elimination by the year 2020 difficult to reach, despite the great achievements to date. The Onchocerciasis Elimination Program of the Americas (OEPA) has since 1992 covered approx. 600,000 people in endemic foci in six countries with 2x/year ivermectin mass treatment and by maintaining a rigorous census to ensure high-enough coverage of the eligible population. This very successful program will have interrupted transmission by 2015 in all foci outside Brazil and Venezuela. The African Programme for Onchocerciasis Control, started in 1995, has so far only focused on morbidity control in highly endemic (>60%) areas by yearly Ivermectin treatment, but will try to upscale activities to also become an elimination programme. However, tremendous obstacles, such as poor health resources, seasonal migration of the population or civil-war induced long-term migration, inaccessibility of vast areas (Congo), adverse events after ivermectin in people co-infected with high loads of Loa loa, and last not least potential Ivermectin resistance will make this a difficult task. For both LF and onchocerciasis, current research will need to define clear thresholds of residual infection loads that will eventually die out on their own, thus allowing the end of MDA without re-appearance of the infection. Remaining pockets of infection are in need of approaches different to MDA, with identification of index cases or index populations and “test and treat” strategies. New treatment schemes involving the targeting of Wolbachia endosymbionts with doxycycline will soon be tested in “end-game” scenarios and in difficult-to-access areas. Due to their superior efficacy (macrofilaricidal effects, in contrast to mainly larvicidal effects of MDA drugs), these regimes may provide a better cost/benefit ratio than current MDA and thus be used for those difficult hot spots.

V34 Significant drop of worm burden after treatment of lymphatic filariasis in Kyela District in South West Tanzania.

(I Kroidl, Ludwig-Maximillian-Universität München, L Maganga, NIMR-Mbeya Medical Research Programme, P Clowes, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania and Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, L Maboko, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania, HW Makunde, NIMR-Tanga Medical Research Programme, A Hoerauf, Institute of Medical Microbiology, Immunology and Parasitology, Bonn, Germany, E Saathoff, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, T Löscher)

Background; Lymphatic Filariasis (LF) is a mosquito-transmitted disease which is found in 81 countries throughout the tropics. More than 1.3 billion people are at risk to contract the disease; 120 million are infected. Since the year 2000, efforts are undertaken by the “Global Alliance to Eliminate Lymphatic Filariasis”, to eradicate the disease, using repeated once annual mass drug treatment (MDA) with a two drug combination of Albendazole (or DEC) and Ivermectine..Mapping of the prevalence in different regions as well as evaluation of treatment is needed for the success of the programme. Nine countries, originally classified as endemic for LF, were found not to require MDA. Of the remaining 71 countries 53 had started treatment programmes by December 2011. In July 2009, the campaign started in South Tanzania. Mapping of the prevalence in different regions and evaluation of treatment outcome is needed to assess the success of the programme. Objectives: Evaluation of the prevalence of Lymphatic Filariasis (LF) in a randomized population before and after 2 rounds of mass treatment with Ivermectine (200µg/kg)/ Albendazole (400mg). Methods: From October 2009 until June 2011 the SOLF Study (Surveillance of lymphatic Filariasis) was conducted at one of the NIMR-MMRP study sites in Tanzania. Ten percent of households in the Kyela site were selected in order to determine the preva-

lence of LF in that area, with measuring circulating filarial antigens (CFA) in the plasma (TropBio® Og4C3 serum ELISA, Townsville, Australia). Antigen levels reflect the worm burden of adult worms and have previously been used to evaluate the efficacy of lymphatic filariasis elimination programs Seven hundred and seventy participants were visited in 2009, before mass drug treatment commenced and 2011, after 2 rounds of the mass drug administration. Participants were asked about symptoms of the disease and participation in the government program. Blood was taken to measure CFA. Results: We found a CFA in 22.4% of the samples in 2009 and in 19.1% of the samples in 2011. The mean antigen level of infected individuals dropped from 8192 Units to 2048 Units. Of all infected participants, the group of individuals with high antigen level (> 32.000 units) was 57.5% in 2009 and 14.9% in 2011 ($p<0.0001$), reflecting a lower worm burden after treatment. The different sub villages of the Kyela area showed prevalence ranges between 18.3 and 29.9 %. CFA prevalence showed an increase with age, ranging from 1-3% in young children to 44% in adults above the age of 35 years. When asked about the Government program against LF, only 3 persons reported to have participated, whereas discussions with the District Medical Officer (DMO) in Kylea revealed coverage of 60.2 % and 68% in 2009 and 2010 respectively. Clinical manifestations: We found elephantiasis in 0.8% of the participants, and hydrocele in 0.35%. None of them reported any benefit from the Government program, which is probably due to the fact that the drugs of choice used in the program have little effect on the clinical manifestations of the disease. The numbers seem lower than expected, suggesting that several participants with clinical disease didn't reported about their disabilities. Conclusions: Lymphatic filariasis in Kyela region had a high prevalence of 22.4% before the Government program commenced in 2009. Two rounds of mass drug administration led to a decrease in prevalence to 19.1% and a significant lower worm burden in infected participants. The carefully randomized cohort and large number of participants in the survey allows an estimation of treatment success after the initial 2 rounds of the treatment program. People of the area seem not to be aware of the government program. The reported coverage was 60.2% and 68% in 2009 and 2010 respectively. Treatment success rates are necessary to estimate the years of treatment needed to stop the transmission of LF in that area.

V35 Prävalenz chronischer Hepatitis B und C - Koinfektionen bei Patienten mit hepatolienaler Schistosomiasis in Tansania

(J Hillner, M Koy, S Kalluvya, G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU, B Weissbrich, A Stich, C Majinge, A Müller, Missionsärztliche Klinik)

Hintergrund: Die hepatolienale Schistosomiasis, verursacht durch Schistosoma mansoni, und die chronische Hepatitis B und C sind mit Prävalenzen von bis zu 50%, 7,2% bzw. 1,2% Hauptursachen chronischer Lebererkrankungen in Tansania. Bisher liegen jedoch keine Daten über die Rate an Koinfektionen von Schistosoma mansoni und chronischer Hepatitis B/C und ihre Auswirkung auf die Schwere der Lebererkrankung aus Tansania vor. Die Region Mwanza am Viktoriasee gehört zu den Gebieten mit der höchsten Prävalenz an Schistosomiasis des Landes. Methoden: Am Bugando Medical Center (BMC) in Mwanza, Tansania, wurde im Zeitraum von Januar bis September 2010 eine prospektive Beobachtungsstudie durchgeführt. Insgesamt wurden 98 Patienten eingeschlossen, bei denen eine portale Hypertension durch den Nachweis von Ösophagusvarizen Grad I-IV mittels Ösophagogastroduodenoskopie (ÖGD) diagnostiziert worden war. In einem standardisierten Interview wurden Risikofaktoren für Hepatitis B / C sowie die Exposition gegenüber der Schistosomiasis erfasst. Neben der Dokumentation klinischer Parameter wurde eine abdominelle Ultraschalluntersuchung mit Klassifizierung der sonomorphologischen Veränderungen der Leber nach den Empfehlungen der WHO (7) durchgeführt. Serumproben wurden auf Schistosomiasis-Antikörper, Anti-HBc, HBsAg und Anti-HCV untersucht. Es erfolgte eine Bestimmung des Blutbildes, der ALT, AST, Cholinesterase und gamma-GT. Stuhlproben wurden nach Anreicherung mikroskopisch auf Schistosomeneier und Urinproben mittels des Schistosoma – CCA (Circulating Cathodic Antigen) - Schnelltest (Rapid Medical Diagnostics, Südafrika) untersucht. Ergebnisse: Von 98 Patienten wurden 62 (63,3%) positiv auf Schistosomen-Antikörper getestet, bei 92 (93,9%) konnte Anti-Hbc, bei 31 (31,6%) HbsAg und bei 6 (6,1%) Anti-HCV nachgewiesen werden. Bei 22 (35,5%) der 62 Patienten mit serologisch bestätigter Schistosomiasis bestand eine Koinfektion mit chronischer Hepatitis B. 5 dieser 62 Patienten (8,1%) wurden positiv auf Hepatitis-C-Antikörper gestestet. Bei 2 der 62 Schistosomiasis – AK-positiven Patienten (3,2%) waren sowohl HbsAg als auch Hepatitis C – Antikörper nachweisbar. Die Cholinesterase als Parameter für die Lebersyntheseleistung war in der Gruppe der Koinfizierten signifikant erniedrigt ($P <0.05$). Sonographisch zeigte sich in dieser Gruppe eine höhere Rate an Leberzirrhose und Aszites ($P <0.05$) als in der Vergleichsgruppe. Schlussfolgerung: Die Schistosomiasis ist die häufigste Ursache einer portalen Hypertension in der Region Mwanza, gefolgt von der chronischen Hepatitis B. Im Studienkollektiv fand sich eine deutlich über den bisher publizierten Daten liegende Prävalenz von Hepatitis C-Antikörpern. Bei mehr als einem Drittel der Schistosomiasis-Antikörper-positiven Patienten bestand eine chronische Hepatitis B – Koinfektion. Die Koinfektion beeinflusst entscheidend die Schwere der Lebererkrankung dieser Patienten.

V36 Epidemiology of cutaneous larva migrans in urban Amazonia

(F Reichert, A Schuster, Institut für Mikrobiologie und Hygiene, H Feldmeier, Institut für Mikrobiologie und Hygiene, H Lesshafft, Charité Berlin, Institut für Mikrobiologie und Hygiene, R Ignatius, Charité Berlin, Tropeninstitut, d pilger, s Guedes de Oliveira)

Background: Cutaneous larva migrans (CLM) is a tropical skin disease caused by the migration of animal hookworm larvae in the human epidermis. Methods: To examine prevalence and risk factors of CLM in urban Amazonia, a cross-sectional study was conducted in Manaus, Brazil. Data was obtained by a door-to-door-survey in a resource-poor township. All participants were examined clinically and interviewed using a standardized questionnaire. χ^2-test or Fisher-exact-test were used to compare relative frequencies, and logistic regression was performed for non-binary variables. Odds ratios were calculated together with 95% confidence intervals. A poverty index was formed by using principal component analysis to categorize households according to household assets. Results: A total of 806 persons living in 262 households were admitted to the study. The median age was 18 (0-72 years). Sixty-six persons (8.2 % [95% CI 6-10%]) were diagnosed with CLM, 44/66 showed an active severely itching lesion, whereas 22/66 presented with a track that was already healing. Seven out of 66 patients showed bacterial superinfection. In children <15 years the prevalence was 12.8% [95% CI 10-16%]. To identify the place where infestation probably had taken place, a bivariate analysis was performed. The following risk factors were identified: 1. indoor barefoot walking in a house with a floor of sand or soil (OR= 2.18 [95% CI 1.17-4.03]), 2. presence of animal faeces in the garden (OR=2.63 [95% CI 1.45-4.78]), 3. outdoor barefoot walking in general (OR= 4.16 [95% CI 2.14-8.07]) and especially on sandy ground (OR= 8.76 [95% CI 3.15-24.34]), 4. playing soccer (OR= 3.38 [95% CI 1.99-5.76]). CLM was associated with poverty: A high poverty score was associated with an odds ratio of 3.16 [95% CI 1.44-6.93]. Conclusion: In urban Amazonia cutaneous larva migrans is a poverty-related disease with a high prevalence in children. Infestation seems to take place mainly outdoors and was associated with walking barefoot.

V37 Healing of cutaneous larva migrans lesions after a single dose of ivermectin is accompanied by changes in cytokine patterns in the peripheral blood

(A Schuster, Institute of Microbiology and Hygiene, Charité University Medicine Berlin, Berlin, Germany, R Shimogawara, Department of Environmental Parasitology, Tokyo Medical and Dental University, N Hata, Department of Environmental Parasitology, Tokyo Medical and Dental University, H Lesshafft, Charité Berlin, Institut für Mikrobiologie und Hygiene, S Guedes Oliveira, Fundation for Tropical Medicine of Amazonia, R Ignatius, Charité Berlin, Tropeninstitut, H Feldmeier, Charité Berlin, Institut für Mikrobiologie und Hygiene)

Background: Cutaneous larva migrans (CLM) is a neglected tropical skin disease caused by the migration of animal hookworm larvae in the epidermis. The disease is common in resource poor communities in developing countries. Methods: CLM- P patients were identified through active case finding in two resource-poor communities in Manaus, Brazil. Patients were diagnosed clinically and the severity of the disease was assessed using a semi semi-quantitative severity score. Clinical pathology, haematological and immunological investigations were assessed before treatment with ivermectin (200µg/kg) and two and four weeks after treatment. Leucocytes Leukocytes and eosinophils were counted and total serum IgE was determined. The concentration of IL-4, IL-5, IL-10, IFN-γ, TNF-α and TGF-β was determined in serum using commercially available ELISA Kits. Results: 92 patients were included in the study: 69.6% were male and 30.4% were female. Median age was 9.5 years (IQR 5-44). At baseline, 93.4% of all patients complaint complained about severe pruritus and 73.6% about insomnia. The median severity score was 4 points (IQR 3-6). 87.8% of the patients had eosinophilia (median 7.1/IQR 5.2-12.3 109/l). CLM patients had significant higher eosinophil numbers and higher concentrations of IgE, eosinophils, IL-4, IIIL-5 and IL-10 in serum than age- and sex- matched controls living in the same community. Four weeks after treatment, clinical pathology assessed by the severity score as well as eosinophilia were decreased significantly. Whereas the concentrations of IL-4, IL-5 and IL -10 in serum were decreased, the concentration of IFN-γ was increased significantly. Conclusions: In an endemic area, CLM is associated with considerable morbidity. After treatment with ivermectin clinical pathology, eosinophilia, and cytokine patterns normalize rapidly.

V38 Influence of helminth infections on cytokine levels of individuals with allergic surrogate markers in South-West Tanzania (MATHIS-Study)

(I Kroidl, Ludwig-Maximillian-Universität München, L Maboko, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania, P Clowes, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania and Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, B Pitter, Department Infectious Diseases and Tropical Medicine, C Geldmacher, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, L Podola, M Chachage, NIMR-Mbeya Medical Research Programme, A Nsojo, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania, M Hoelscher, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, E Saathoff, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, T Löscher)

Background: The “hygiene hypothesis” postulates that the increased incidence of allergic diseases during the last decades in the developed countries reflects an absence of appropriate maturation of the immune system under the influence of infectious agents, such as parasitic worms, during childhood. Helminth infections have been suggested to protect from allergies, although the possible mechanism are not clear Objectives: To assess the influence of helminths on cytokine levels of participants with allergic disposition in a well characterized cohort in Southwest Tanzania Methods: We examined stool from 1000 participants aged 2-74 years for the presence of soil-transmitted helminths with Kato Katz-technique. Specific IgE (sIgE) for D. pteronyssinus and B. germanica were measured in the plasma as marker for atopy using the ImmunoCAP technique. Two hundred participants who differed regarding helminth infection or allergic surrogate marker were chosen for immune diagnostics. PBMC were stimulated for 48h with either D. pteronyssinus or B. germanica whole body extract, PPD, CMV, PHA or complete media. Cytokine levels for IFN-γ, IL-4, IL-5, IL-10, IL-13 and IL-17 were measured in participants using cytometric beads array. Results: We found hookworm in 19%, A. lumbricoides in 8%, T. trichuris in 4.4% and S.mansoni in 2.4% of all analysed stool specimen. Specific IgE against D. pteronyssinus was present in 30% of the individuals, against B. germanica in 38%. Compared to uninfected subjects we found sIgE more often in worm infected individuals (24.4% versus, 34.7%, p=0.001 for sIgE against D. pteronyssinus). Helminth infection and allergic disposition both had an influence on the ratio of IFN-g/IL-10 and on IL-13. After stimulation with either allergen the IFN-g/IL-10 ratio was higher in the subgroup with allergic surrogate marker compared to individuals with low specific IgEs. This pattern was influenced by helminth infection which led to nearly 10 fold decease of the IFN-g/IL-10 ratio. IL- 13 secretion was substantially lower in participants with helminth infections. Conclusions: In contrast to our expectations we found specific IgE against house dust mite and cockroach more often in participants with helminth infections, than in uninfected participants. Most likely the choice of surrogate marker has influenced this finding. Allergic disposition was characterized by an increased IFN-gamma/IL-10 ratio. In individuals with allergic surrogate marker the cytokine levels were highly influenced by helminth infections. IL- 13 secretion was substantially lower in participants with helminth infections, as was the IFN-g/IL-10 ratio, demonstrating a modulation of cytokine expression by the helminth infection in our study population.

P15 High density Taenia solium infection in pigs in sub-Saharan Africa as a source of material for diagnostic and research tools

(V Schmidt, Klinikum der Universität München Ludwig-Maximilian-Universität München, CS Sikasunge, Department of Paraclinical Studies, School of Veterinary Medicine, University of Zambia, E Odongo-Aginya, Department of Microbiology and Immunology, Faculty of Medicine, Gulu University, C Simukoko, Department of Paraclinical Studies, School of Veterinary Medicine, University of Zambia, G Mwanjali, Department of Parasitology and Entomology, Muhimbili University of Health and Allied Sciences, S Alarakol, Department of Mental Health, Faculty of Medicine, Gulu University, E Ovuga, Department of Mental Health, Faculty of Medicine, Gulu University, W Matuja, Department of Neurology; Muhimbili University of Health and Allied Sciences, C Kihamia, Department of Parasitology and Entomology, Muhimbili University of Health and Allied Sciences, T Löscher, AS Winkler, Department of Neurology, Klinikum Rechts der Isar, Technical University of Munich, G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU)

Backround: Taenia solium (TS, pork tapeworm) represents an important zoonotic parasite in many resource-poor countries in Africa, Latin America and Asia. Man is the definitive host harboring the adult tapeworm, pigs harbor TS cysticerci as intermediate hosts. When TS eggs are ingested by humans they may become accidental intermediate hosts and acquire cysticercosis/neurocysticercosis. Recommendations on diagnosis include the combination of advanced radiological imaging techniques with serological tests.(1,2) TS cysticerci prepared from pig carcasses still represent the main source for antigen production. Objective: We evaluated the feasibility to obtain TS cysts from rural endemic areas in sub-Saharan Africa and field tested two preparation methods to provide reference laboratories in Zambia, Tanzania and Uganda with antigen for

serological tests. Methodology/Results: In total 670 free-ranging pigs were tested by lingual examination for high density infection.(3) 46 (6.9%) were found positive (Zambia: 3.3%; Uganda: 5.1%; Tanzania: 26.7%), and 16 pigs were selected for cyst preparation which was performed after slaughter by two preparation methods ("washing method","shaking method").(4) Representative samples from each pig carcass were subjected to confirmatory microscopy (specific hooks) and PCR (Cox1, Cytb genes). Altogether 1243 ml whole cysticerci, 989 ml scolices/membranes and 175 ml cyst fluid were obtained. Conclusion: This study demonstrated that both TS cyst preparation methods in the field result in high quality antigen. Identification of highly infected animals requires screening of considerable numbers of pigs and depends on sophisticated logistics and sufficiently trained field teams, but allows collection of large amounts of material for diagnostic purposes and research.

P16 Immunology of Helminth Infections in relation to HIV-1 susceptibility and disease progression in Mbeya Region, Tanzania (WHIS)

(M Chachage, NIMR-Mbeya Medical Research Programme, Mbeya, Tanzania and Center for International Students-LMU, Munich, Germany, L Podola, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania and Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, P Clowes, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania and Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, D Kowour, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania, A Nsojo, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania, A Bauer, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania and Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, I Kroidl, Ludwig-Maximillian-Universität München, L Maboko, NIMR Mbeya Medical Research Programme, Mbeya, Tanzania, M Hoelscher, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, E Saathoff, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany, C Geldmacher, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany)

Background: It has been hypothesized that helminth infections modify HIV susceptibility and disease progression and thus might contribute to the high prevalence of HIV-1 in Africa. Immune system modulation by different helminth infections might contribute to such alterations. Objective: To study immune system modulation of different helminth infections (A. lumbricoides, Trichuris trichiura, Hookworms, S.haematobium and S. mansoni) in relation to HIV-1 susceptibility and disease progression. Methods: Within the region of Mbeya-Tanzania, up to 480 participants with a helminth infection, diagnosed using the Kato Katz method, are intended to be recruited and enrolled into our study cohort. Helminth infected subjects receive antihelminthic treatment at baseline and are followed up at 3 months and 1 year. CD4 T cell counts and expression of regulatory (CD25, FoxP3, Tregs), memory (CD45RO, CD27) and activation markers (CCR5, HLA-DR, CD38) on T cells are studied in relation to helminth and HIV infection status, using polychromatic flow cytometry in fresh anticoagulated whole blood. Pathogen-specific-specific T cell responses are quantified in freshly isolated peripheral blood mononuclear cells, using an Interferon gamma (IFN□) ELISPOT assay after stimulation with different antigens, including a pool of frequently recognized HIV-Gag and Nef peptides and Tuberculin. Results: 365 volunteers have been enrolled to date. Tregs were increased in subjects infected with Ascaris and Trichuris ($p<0.05$) but were also particularly high in HIV+ subjects, independent of their helminth infection status ($p=0.0585$ for HIV+ worm negative and $p=0.0029$ for HIV+ worm positive). Interestingly, a substantial fraction of Tregs (mean 50%) expressed the HIV co-receptor CCR5, suggesting that Tregs are a potential cellular target for HIV infection. Trichuris infection correlated with substantially increased expression of the T cell activation marker HLA-DR on CD4 and CD8 T cells (both $p=0.0001$). Neither concurrent helminth infections nor their treatment had a significant effect on CD4 T cell counts, nor on HIV and Tuberculosis-specific T cell numbers. In contrast, HIV infection alone was associated with significantly increased immune activation and a dramatic depletion of PPD-specific T cell responses. Conclusions: Preliminary results do not support the concept that helminth infections in general are associated with accelerated HIV disease progression, increased immune activation or depressed HIV-specific CD8 T cell responses that secrete IFN□. Regulatory CD4 T cells might be susceptible to HIV infection due to expression of CCR5.

14 - Malaria 2: Translational Research in Malaria

Chair/s: Matthias Frank, Jürgen May
16. März 2012, 13:30 - 15:30 Uhr

13:30 - 14:00	K16	Phase III evaluation of the RTS,S vaccine against Plasmodium falciparum B Lell, Tübingen
14:00 - 14:30	K104	A Human infection model of Plasmodium falciparum malaria Benjamin Mordmüller, Institut für Tropenmedizin in Tübingen
14:30 - 14:45	V39	The Malaria Vectored Vaccines Consortium: Integrating capacity building and networking in the design and conduct of Phase I and II clinical trials of viral vectored malaria vaccines in East and West African children and infants N Viebig, Heidelberg
14:45 - 15:00	V40	Transgenic Plasmodium falciparum parasites from a chronically infected African individual suggest that Plasmodium falciparum erythrocyte membrane protein 1 (PfEMP1) is not the main antigen on the surface of infected red blood cells C Enderes, Tübingen
15:00 - 15:15	V41	DBL domain expression in Plasmodium falciparum from Indonesia N Berens-Riha, München
15:15 - 15:30	V42	Plasmodium falciparum-infected erythrocytes induce Granzyme B by NK cells through expression of host-Heat shock protein 70 E Böttger, Tübingen
	P17	Detection of polyparasite infection in a single patient sample R Köllner, Tübingen
	P18	Characterization of PfEMP1 immunogenicity through quantification of the variant surface antigen signal and var gene transcription in field isolates from a natural infection in Lambaréné, Gabon. E Bruske, Tübingen

P19 Klinische Bedeutung verschiedener Biomarker bei importierter Malaria tropica bei Erwachsenen
S Stauga, Hamburg

P20 Malaria in Nepal: current status and knowledge gaps
M Dhimal, Frankfurt

K16 News from the RTS,S malaria vaccine candidate

(B Lell, Institut für Tropenmedizin, B Mordmüller, Institut für Tropenmedizin, Tübingen)

Among the malaria vaccine candidates currently in development, RTSS is the one most advanced. It contains B-cell and T-cell epitopes of the circumsporozoite protein, conjugated with the hepatitis B surface antigen. The adjuvant, AS01, is a liposmal formulation of two immunostimulatory components (MPL and QS21). In 2005, an extensive clinical development programm was put in place, based on a consortium which includes the Malaria Vaccine Initiative, GlaxoSmithKline and several African research centers. In a series of phase II trials the dosing regimen was optimized and the vaccine was shown to be safe and immunogenic when given to infants in co-administration with the vaccines of the WHO EPI programm. In 2009, a large phase III trial was started in 11 research centers of 7 African countries, representing different transmission patterns and intensities. This three armed trial, comparing RTSS with and without boosting dose against a control vaccine is currently ongoing. The recruitment phase and initial vaccination phase has finished successfully. Over 15000 children aged and infants aged were vaccinated. Initial results show an efficacy of 56 % against clinical malaria episodes and 47% against severe malaria after 1 year of follow-up. The frequency of severe adverse events was similar among the study groups. The follow-up will continue until end of 2013 for all children. Although efficacy of the vaccine is comparatively low, the public health impact of a reducing the number of malaria cases by half would be substantial, due to the high incidence of the disease in endemic countries. Despite a complex regulatory approval process, the aim of the consortium is to introduce the vaccine on the market by 2015.

K104 A Human infection model of Plasmodium falciparum malaria

Benjamin Mordmüller, Institut für Tropenmedizin in Tübingen

V39 The Malaria Vectored Vaccines Consortium: Integrating capacity building and networking in the design and conduct of Phase I and II clinical trials of viral vectored malaria vaccines in East and West African children and infants

(N Viebig, European Vaccine Initiative, K Bojang, MRC Gambia, M Afolabi, MRC Gambia, C Ogwang, KEMRI Kilifi, D Kimani, KEMRI Kilifi, B Cisse, UCAD, P Bejon, KEMRI Kilifi, N Kaul, VSCR, A Nicosia, Okairos Srl, S Sirima, CNRFP, A Hill, University of Oxford, EB Imoukhuede, European Vaccine Initiative)

Malaria caused by Plasmodium falciparum results in the deaths of about one million people every year. The majority of deaths occur in children living in sub-Saharan Africa. While methods such as the use of anti-malarial drugs, and insecticide-treated bed-nets exist for malaria control, there are currently no effective vaccines available. A vaccine giving strong and lasting protection would provide the most cost-effective and long-term solution for the prevention of this deadly disease. The Malaria Vectored Vaccines Consortium (MVVC) is a four year project set up with the aim of integrating capacity building and networking in the design and conduct of Phase I and II clinical trials of viral vectored malaria vaccine candidates in East and West African adults, children, and infants. The overall objective of the project is to develop a safe, non-reactogenic, effective and affordable malaria vaccine for use by the malaria-endemic populations of the world. Viral vectored vaccines have emerged as leading vaccine candidates, with recombinant adenoviruses proving to be highly potent vectors for induction of both CD8 T cell and antibody responses. A prime-boost with a chimpanzee adenovirus (ChAd63) and modified vaccinia virus Ankara (MVA) is expected to be particularly potent in preventing malaria. The antigen utilised in this candidate vaccine is ME-TRAP, the complete Plasmodium falciparum pre-erythrocytic thrombospondin-related adhesion protein (TRAP) fused to a string of T cell multiple epitopes (ME). In the first clinical trials in The Gambia and Kenya, the participants have completed vaccination and follow-up. The safety profile has been excellent. Good T cell responses against the TRAP antigen are seen following priming vaccination with ChAd63 ME-TRAP and boosting with MVA ME-TRAP. The results of the first clinical trials in The Gambia and Kenya and the achievements of the MVVC within the first two years on capacity building and networking will be presented.

V40 Transgenic Plasmodium falciparum parasites from a chronically infected African individual suggest that Plasmodium falciparum erythrocyte membrane protein 1 (PfEMP1) is not the main antigen on the surface of infected red blood cells

(C Enderes, D Kombila, S Tschan, P Kremsner, M Frank, Instutute for Tropical Medicine, University of Tübingen)

Plasmodium falciparum remodels the membrane of infected red blood cells (iRBC) through expression of variant surface proteins. In malaria endemic areas semi-immunity against P. falciparum malaria is associated with acquisition of antibodies against variant surface proteins. To date five protein families have been described, PfEMP1, RIFINs, STEVORs, PfMC-2TMs and SURFINs of which several are suggested to by involved in antigenic variation. Plasmodium falciparum erythrocyte membrane protein 1 (PfEMP1) is the best characterized surface protein group so far. PfEMP1 are encoded by the hypervariable var gene family and clonal expression of the 60 gene family members leads to presentation of only one type of PfEMP1 on each iRBC surface. PfEMP1 mediate cytoadherence to several host endothelial receptors suggesting a role in the pathogenesis of the disease. Variation of clonally expressed PfEMP1 through var gene transcriptional switches results in antigenic variation. We (Enderes et al. 2011) and others have shown that individual var loci are transcribed for prolonged periods of time without undergoing transcriptional switches. This raises the question how parasites can survive in a chronic infection with strong immune pressure. In this work we attempt to identify the mechanisms that result in real life parasite survival during a natural infection. We ask if var genes transcribed in a chronic infection are stably expressed over long periods, if mitotic recombination generates new var sequences and if PfEMP1 is the main antigen on the surface of the iRBC. A chronic P. falciparum infection of an asymptomatic Gabonese individual was monitored for a total of ten weeks. Parasitemia was monitored every 3-4 days throughout the course of the infection. DNA, RNA, cryoperserved parasites and serum was obtained every 3-4 days. Transcriptional analysis of the var gene family was performed in vivo and in vitro. The var gene family was characterized through DBL-shotgun

cloning at different time points of the infection. Acute and convalescent serum, culture adapted P. falciparum parasites from the original infection and two laboratory strains were employed to characterize the humoral immune response by flow cytometry. All parasites were selected for PfEMP1 expression through CD36 receptor binding selection. Ultimately var knock-down strains were generated by transfection technology in field isolates and laboratory strains to characterize the identity of the antigens on the surface of the iRBC. Analysis of var gene transcription in vivo revealed transcription of seven var genes. The transcription of these var loci remained stable for 1 year in vitro. No new genomic var DBL variants were identified throughout the infection. Flow cytometry with convalescent serum revealed a strong antibody recognition signal on culture adapted field isolates but not in unselected laboratory strains. CD36 receptor selection resulted in a strong binding phenotype in laboratory strains but only weak binding in field isolates. CD36 receptor binding selection induced a strong antibody recognition signal in laboratory strains. Removal of PfEMP1 in transgenic laboratory parasites led to almost complete loss of this surface antibody signal. In marked contrast removal of PfEMP1 in transgenic field isolates only had a small effect on the surface signal. The continued transcription of var genes in parasites obtained from a chronic infection and the absence of var gene recombination suggests that individual PfEMP1 variants are exposed for prolonged periods to the human immune system. However, this does apparently not result in the removal of the parasites from the circulation. The continued strong surface signal in transgenic var knock down field isolates suggests that PfEMP1 is only a minor part of the surface antigens in these parasites. Together these data suggest that additional protein families serve as antigens for the human immune response and support a role of these proteins in antigenic variation.

V41 DBL domain expression in Plasmodium falciparum from Indonesia

(E Sulistyaningsih, Jember University, N Berens-Riha, Ludwig-Maximilians-Universität, München)

During blood-stage infection, P. falciparum requires binding proteins named Duffy binding-like (DBL) domains being found in two distinct protein families: the Erythrocyte Binding Ligand (EBL) and Plasmodium falciparum Erythrocyte Membrane Protein 1 (PfEMP1). EBLs are believed to be involved in erythrocytes invasion. PfEMP1 is a highly polymorphic protein and is supposed to play an important role as cytoadherence ligand on the surface of infected erythrocytes and thereby contributing to the distinct pathogenesis of malaria. These variant surface antigens are encoded by var genes. By switching rapidly the expression, they evade efficiently the host's immune defense. Conserved regions within these genes would be ideal vaccine candidates for the prevention of invasion or sequestration of parasites. Field samples from patients with severe and uncomplicated malaria in two different malaria endemic areas in Indonesia were collected to study the association of specific gene expression and clinical outcome. By sequencing mRNA and genomic DNA, the broadness of var gene variation in Indonesia compared with other geographical regions was explored. A high divergence of DBL1 domains within and among isolates, aside from some similarities with other Asia-Pacific strains, was found. The DBL1 sequences were analysed by distribution of semi-conserved features (cysteine/PoLV1-4, defined homology blocks) and classified into six sequence groups, several recently described homology blocks matched with these. Overall, there was no evidence for a difference between DBL1 sequence motifs between severe and uncomplicated malaria (p=0.48). The expression of a 237 bp sequence corresponding to var D genes was detected solely in severe malaria patients implicating an association of gene expression and manifestation of severe malaria in Indonesian isolates. This possible association was reported from French Guiana before. Further characterisation of the var D gene with a larger sample size is required to draw a definite conclusion.

V42 Plasmodium falciparum-infected erythrocytes induce Granzyme B by NK cells through expression of host-Heat shock protein 70

(E Böttger, Institute for Tropical Medicine, University of Tuebingen, G Multhoff, Department of Radiation Oncology, Technische Universität München and Helmholtz Zentrum München, CCG – Innate Immunity in Tumor Biology, P Kremsner, JF Kun, M Esen, Institute for Tropical Medicine, University of Tuebingen)

In early innate immunity against Plasmodium falciparum infection, Natural Killer (NK) cells play a pivotal role. Main effector functions of NK cells are interferon-gamma secretion and priming of adaptive immunity via cross-talk [1,2]. NK cell activation depends on the integration of signals from numerous inhibiting and activating receptors [3]. However, it is not well understood whether NK cells can directly recognize iRBC and exert cytotoxicity or whether effector functions exclusively depend on accessory cells through provision of cytokines and cell-to-cell contact [4,5]. For a deeper understanding of involved processes, influence of membrane-expressed host Heat shock protein (Hsp) 70 in triggering cytotoxicity of NK cells from malaria-naïve donors or the cell line NK92 against iRBC was investigated. Therefore, presence of NK cell ligands on iRBC such as Hsp70, HLA-E, and MICA/B as well as surface exposure of NKG2C and CD94 on NK92 cells after 24h of co-culture with iRBC was evaluated by flow cytometry. Additionally, influence on transcription, translation and/or release of the effector molecules granzyme (Gzm) A, granzyme B and perforin was studied with immunoblot, qRT-PCR and ELISPOT. Impact of lymphocytes on iRBC development was assessed visually and by annexin-V staining to detect apoptosis of iRBC. Our results suggest that Hsp70 on the membrane of iRBC provokes NK cell-mediated cytotoxicity, as evidenced by impaired parasite development and signs of apoptosis of iRBC after 24h of co-culture with NK cells. Enhanced protein expression and release of GzmB by NK cells following co-culture with iRBC was observed. The number of GzmB-producing NK cells could be specifically enhanced by pre-stimulation with the Hsp70 epitope TKD peptide and diminished by blocking Hsp70 exposure. This suggests that NK cell action might directly reduce parasitemia. Thus, we propose TKD as an innovative immunostimulatory agent to be tested as an adjunct to anti-parasitic treatments in vivo.

P17 Detection of polyparasite infection in a single patient sample

(R Köllner, A Kreidenweiss, Institut für Tropenmedizin, Universität Tübingen)

Polyparasitism is wide spread in the African population but is neither commonly diagnosed in African clinical routine nor sufficiently considered in infectious disease research. A broad range of methods and experience is necessary for multiple parasite species detection but capacities in poor countries are limited and multiplex parasite diagnostic assays are not available. Therefore, we want to develop a novel diagnostic tool that allows for the simultaneous identification of multiple parasitic infections using a single patient serum sample of little volume. The assay is based on microbeads analysed in a flow cytometer. Conjugation of pathogen antigen-specific antibodies to separate populations of colour-coded beads allows for the creation of a multiplex assay in which a mixture of beads is sequentially mixed with serum, then a cocktail of antigen-specific fluorescence-labelled detector antibodies is added prior to screening in a flow cytometer. The presence of individual infection(s) is then determined as a function of the detector antibodies' fluorescence intensities associated with the different populations of microbeads, using pre-defined threshold values to delineate positive from negative signals. Here, we present the establishment of the simultaneous detection of malaria and bilharziasis parasites namely plasmodia and schistosoma, respectively. Plasmodium falciparum and P. spec. are identified by detection of plas-

modial histidin rich protein 2 (HRP2) and lactate dehydrogenase. Detection of schistosoma is based upon the worms´ circulating anodic antigen (CAA). Sensitivity of HRP2 was approximately 100 parasites per µl blood. Further studies will evaluate the assay´s sensitivity and specificity in patient samples harbouring both parasitic infections and the detection of further helminth species will be incorporated.

P18 Characterization of PfEMP1 immunogenicity through quantification of the variant surface antigen signal and var gene transcription in field isolates from a natural infection in Lambaréné, Gabon.

(E Bruske, S Dimonte, C Enderes, M Frank, Institute for Tropical Medicine, University of Tübingen)

In Plasmodium falciparum malaria, cytoadherence of infected red blood cells to host endothelial receptors is mediated by the variant surface proteins Plasmodium falciparum erythrocyte membrane protein 1 (PfEMP1). These proteins are encoded by the var multigene family. Antigenic variation – a mechanism to avoid the host's immune response - is the result of mutually exclusive expression of var gene loci and switching of the active var gene. To investigate var gene transcription and variant surface antigen expression in a chronic P. falciparum infection, parasites from an asymptomatically infected adult Gabonese individual have been brought into laboratory culture. By means of limiting dilution, fifty-five parasite clones were generated from the original field isolate. We are evaluating the flow cytometry signal of parasite clones expressing individual members of the var gene family with convalescent serum to determine the immunogenicity of the variant surface proteins. We have developed a var gene family specific primer set for this field isolate to identifiy the individual var gene transcribed in each individual clone. To assess the PfEMP1 specific component of the surface signal we have generated transgenic var knock down field isolates. The correlation of var gene transcription and flow cytometry surface signal in wilde type and var knock down parasites will enable an analysis of the immunogenicity of PfEMP1 relative to other variant surface proteins expressed on the infected red blood cell. It is the aim of this project to address the question how P. falciparum avoids the human immune system.

P19 Klinische Bedeutung verschiedener Biomarker bei importierter Malaria tropica bei Erwachsenen

(S Stauga, Universitätskrankenhaus Hamburg-Eppendorf, A Hahn, Bernhard-Nocht-Institut für Tropenmedizin, NW Brattig, Bernhard-Nocht-Institut für Tropenmedizin, G Burchard, Medical Department I, University Medical Center Hamburg-Eppendorf, JP Cramer, Universitätskrankenhaus Hamburg-Eppendorf, Medizinische Klinik I, Sektion Tropenmedizin und Bernhard-Nocht-Institut für Tropenmedizin)

Einleitung: Das Spektrum der klinischen Symptomatik bei der Malaria tropica ist vielfältig. Einige Laborparameter korrelieren zwar mit der Schwere der Erkrankung, jedoch gibt es bisher keine prognostischen Marker, die bereits in der Frühphase einen Hinweis auf den Verlauf der Erkrankung geben. Ziel der Studie war es zu ermitteln, ob verschiedene Biomarker die Schwere der Krankheitsbilder abbilden und so eine Bedeutung hinsichtlich der Prognose und der Risikostratifizierung haben. Methoden: Zwischen 2007 und 2011 wurden in der Medizinischen Klinik I, Sektion Tropenmedizin, des Universitätskrankenhauses Hamburg-Eppendorf 79 erwachsene Patienten mit einer Malaria tropica und 41 gesunde Kontrollpersonen in die Studie eingeschlossen. Die Einteilung der Malaria in eine komplizierte oder unkomplizierte Form erfolgte nach modifizierten Kriterien der WHO. Im Serum erfolgte die Bestimmung von Copeptin, Elastase, Endothelin, sICAM, sVCAM, Myeloperoxidase, CRP, LDH, Thrombozyten, Fibrinogen und D-Dimeren. Die Laborwerte wurden mittels Receiver Operating Characteristic (ROC) Kurve analysiert. Mittels multivariater Analyse unter Einschluss der Kreatininwerte wurde für eine potentiell eingeschränkte renale Eliminierung korrigiert. Ergebnisse: Zwölf (15,1%) der 79 Patienten hatten eine komplizierte Malaria tropica. Bezüglich der Malaria (kompliziert und unkompliziert) zeigten in der ROC-Analyse fünf Marker die größte Fläche unter der Kurve: CRP (1,00), Myeloperoxidase (0,99), D-Dimere (0,98), Elastase (0,98) und sICAM (0,98). Ähnliches konnte für LDH, Thrombozyten, sVCAM, Fibrinogen, Copeptin und Endothelin dargestellt werden. Oben genannte Parameter konnten nicht ausreichend differenzieren zwischen komplizierter und unkomplizierter Malaria tropica. Diskussion: CRP, MPO, D-Dimere, Elastase und sICAM, sVCAM, LDH, Thrombozyten, Fibrinogen, Copeptin und Endothelin waren bei Patienten mit einer Malaria tropica im Vergleich zu Gesunden signifikant erhöht. CRP zeigte von allen gemessenen Parametern die höchste diagnostische Aussagekraft. Die Messergebnisse der Parameter waren bei Patienten mit einer komplizierten Malaria tropica im Vergleich zu Patienten mit einer unkomplizierten Malaria tropica nicht signifikant erhöht. Eine Beurteilung der Schwere der Krankheitsbilder anhand der oben genannten Biomarker ist also nicht möglich.

P20 Malaria in Nepal: current status and knowledge gaps

(M Dhimal, Biodiversity and Climate Research Centre (BiK-F), Emerging and Neglected Tropical Diseases Unit, U Kuch, Biodiversity and Climate Research Centre (BiK-F))

Malaria continues to be one of the priority public health problems of Nepal in terms of mortality, morbidity and the corresponding impact on the national economy of this Himalayan country. An estimated 80% (22.5 million) of the total population of Nepal is at risk. Here, we present results from a review of published and grey literature. Despite a drastic decline of total malaria positive cases, the proportion of Plasmodium falciparum malaria is increasing steadily in Nepal. Anopheles annularis, A. fluviatilis, A. maculatus and A. minimus have been reported to be the primary malaria vectors in Nepal. After the introduction of synthetic pyrethroids, A. minimus has almost disappeared from Nepal. Treatment failure of P. falciparum malaria in Nepal has been shown for chloroquine and sulfadoxine-pyrimethamine but clinical chloroquine resistance in P. vivax has not been reported in this country [1,2]. The annual mean temperature in Nepal increased at a linear rate of 0.4°C per decade from 1975 to 2005. This may allow P. falciparum malaria to expand its range in higher altitudes where it did not occur before. However, scientific data on malaria vectors and their distribution in Nepal is totally lacking for the years after 1990. In addition to the status and trends of malaria in Nepal, our review has identified important knowledge gaps that need to be filled. Among these, the diversity and distribution of P. falciparum vectors, their ecological niches and climatic adaptation potential as well as insecticide resistance profiles should be addressed with priority on the vector side. Finally, understanding and predicting the influence of climate change on vector diversity, development and distribution and malaria transmission in Nepal is critical for long-term public health planning, designing and implementing appropriate preventive or adaptive interventions, and for an adequate spatial and temporal allocation of resources.

15 - Funding for Research

Chair/s: Thomas Junghanss
16. März 2012, 16:00 - 18:00 Uhr

16:00 - 16:40	Deutsche Forschungsgesellschaft A Strecker, Bonn
16:40 - 17:00	EU A Jahn, Heidelberg
17:00 - 17:30	BMBF D Böcking, Berlin
17:30 - 18:00	DAAD M Hörig, Bonn

16 - Tuberkulose

Chair/s: Michael Hölscher, Thorsten Thye
16. März 2012, 10:45 - 12:30 Uhr

10:45 - 11:05	K17	Humangenetische Faktoren bei der Tuberkulose T Thye, Hamburg
11:05 - 11:25	K18	Update der TB-Medikamentenentwicklung M Hölscher, München
11:25 - 11:40	V43	Prevalence of Drug Resistance in Mycobacterium Tuberculosis Complex Isolates from Yaoundé, Cameroon EM Tekwu, Tübingen
11:40 - 11:55	V44	Assessment of the prevalence of latent and active Mycobacterium tuberculosis infections in Gabon using the diagnostic tests Quantiferon, MGIT and GeneXpert E Bruske, Tübingen

K17 Humangenetische Faktoren bei Tuberkulose

(T Thye, C Meyer,)Bernhard-Noch-Institut, Hamburg

Seit den 1980er Jahren wurde in vielen Studien versucht, Gene zu identifizieren, die mit dem Auftreten einer Tuberkulose bzw. einem bestimmten Infektionsphänotyp assoziiert sind. Solche Untersuchungen waren Folge von Beobachtungen der Krankheitskonkordanz bei monozygoten Zwillingen und des gehäuften Auftretens von Tuberkulose in bestimmten Familien und ethnischen Gruppen. Heute stehen für die Identifizierung der genetisch bedingten erhöhten oder verminderten Empfänglichkeit für Tuberkulose im Wesentlichen zwei unterschiedliche Vorgehensweisen zur Verfügung. So können so genannte Kandidatengene, auf ihre Variabilität und ihre Assoziation mit einem bestimmten Krankheitsphänotyp untersucht werden. Dabei wird die Hypothese untersucht, dass die Funktion eines Kandidatengens einen Einfluss auf den Infektionsphänotyp hat. Die zweite Vorgehensweise beinhaltet genomweite Assoziationsuntersuchungen. Sie ist hypothesenfrei und bezieht eine große Anzahl an genetischen Varianten, die über das gesamte menschliche Genom verteilt sind, ein. Es sollen beispielhaft Befunde zu den Kandidatengenen MCP-1, MBL und IRGM vorgestellt werden, die in einer großen Studienpopulation aus Ghana erhoben wurden. Bei einigen Kandidatengenen lässt sich auch eine Assoziation mit dem Vorkommen bestimmter Mykobakteriengenotypen nachweisen. Weiterhin soll eine genomweite Assoziationsstudie unter Einbeziehung von Studienkollektiven aus Gambia, Indonesien und Russland vorgestellt werden, bei der signifikante Ergebnisse auf den Chromosomen 11 und 18 erhoben wurden.

K18 Update der TB Medikamentenentwicklung

(M Hoelscher, Department of Infectious Diseases and Tropical Medicine, University of Munich, Munich, Germany)

Tuberculosis (TB) remains one of the most important causes of death from an infectious disease; in 2010, there were 8.8 million incident cases of TB and 1.45 million deaths. Furthermore, multi-drug-resistant (MDR)-TB is spreading and poses a major threat to progress in global TB control. Only 1% of patients with MDR-TB are estimated to be on appropriate drug treatment, and they have poor treatment outcomes, highlighting an urgent need for new TB drug regimens that are shorter, more effective and with less toxicity. The presentation will review the current novel drugs and drug regimens that are in development and evaluation. It will highlight some of the new strategies that will help to speed up the drug development pathway, which currently takes 5-7 years. For example new biomarkers are required to improve efficiency of Phase II and III trials utilising adaptive designs. On the regulatory side major efforts need to be taken to bring together the interests of the different pharmaceutical players. Coordination and collaboration among drug developers, research funders, national governments and policy makers is essential.

V43 PREVALENCE OF DRUG RESISTANCE IN MYCOBACTERIUM TUBERCULOSIS COMPLEX ISOLATES FROM YAOUNDÉ, CAMEROON

(L Sidze Kamgue, University of Yaoundé I, EM Tekwu, University of Tübingen, J Assam Assam, University of Yaoundé I, T Tedom, University of Yaoundé I, C Kuaban, F Fouda, SI Eyangoh, JS Frick, University of Tübingen, F Ntoumi, FCRM, M Frank, University of Tübingen, C Kuaban)

Background: Studies from southern Africa report a high prevalence of multidrug-resistant and extensively drug-resistant tuberculosis. Currently only few data are available regarding the prevalence of drug resistance in Mycobacterium tuberculosis isolates from Central Africa. The purpose of this study was to define the extend of Mycobacterium tuberculosis drug resistance in Yaoundé, Cameroon and to evaluate the potential of

molecular makers in predicting isoniazid (INH), rifampicin (RIF) and streptomycine (SM) resistance. Methodology: A total of 290 Mycobacterium tuberculosis complex strains were isolated from smear positive pulmonary tuberculosis patients from Jamot Hospital, a large urban reference center for tuberculosis in Yaoundé, and from Mbalmayo Hospital, a semirural district hospital. Drug resistance against isoniazid, rifampicin, streptomycine, ethambuthol and ofloxacin was investigated using the proportion method. For INH, both low level (0,2 µg/ml) and high level (1 µg/ml) resistance were determined. In addition GeneXpert/RIF test was carried out on 29 smear positive sputa with negative culture. Resistant isolates and a set of fully susceptible strains were screened for genetic mutations in katG, inhA, ahpC, rpoB, rpsL and rrs loci using DNA sequencing. Results: In total, 25 isolates (8.65%) were resistant to at least one antituberculosis drug and mainly to INH (6.20%) and SM (2.41%). Resistance among previously treated cases (11.76%) was higher but not statistically significant compared to new cases (8.23%). No XDR was detected. 3 MDR (1%) cases were detected. Of the 18 INH resistant isolates 10 exhibited high level INH resistance and 8 low level INH resistance. Nine of the high level resistant isolates (50.00%) harbored a katG315 mutation. Additional alterations in the INH resistant isolates were identified in the inhA (8 isolates) and the ahpC (1 isolate) promoter regions. The rpoB531 mutation was observed in 3 of the 4 RIF resistant isolates. Only one SM resistant isolate was genetically altered with a Lys43 to Arg substitution in the rpsL gene. Discussion and conclusion: The data suggest that the prevalence of drug resistance is relatively low in the Central Region of Cameroon. This may be a consequence of the national DOTS (Directly observed therapy) program. These observations emphasize the importance of early diagnosis and adequate treatment. While rpoB appears to be a useful marker for RIF resistance, the picture is more complex for INH and SM resistance.

V44 Assessment of the prevalence of latent and active Mycobacterium tuberculosis infections in Gabon using the diagnostic tests Quantiferon, MGIT and GeneXpert

(AN Traoré, Albert Schweitzer Hospital Lambaréné, E Bruske, Institut für Tropenmedizin Tübingen, J Frick, Institute for Medical Microbiology and Hygiene, University of Tuebingen, H Lay, Institute for Medical Microbiology and Hygiene, University of Tuebingen, M Frank, Institute for Tropical Medicine, University of Tuebingen)

One-third of the world's population is currently infected with tuberculosis (TB) (WHO 2011). TB and the human immune deficiency virus (HIV) are both highly prevalent in sub-Saharan Africa. Here we report a cross-sectional baseline study on the prevalence of tuberculosis in Lambaréné, Gabon. To assess the prevalence of latent and active TB in Lambaréné we performed a baseline study in a population of 230 individuals. The study population comprised hospitalized patients with and without signs of respiratory disease and asymptomatic prison inmates. Quantiferon-TB Gold and mycobaterial culture were performed on all individuals. For latent TB, the Quantiferon test was used as gold standard. In a subset of 209 asymptomatic individuals, 83 were Quantiferon positive (40%), and 126 (60%) were negative. All had negative sputum cultures and were without signs or symptoms of TB. To study active TB, BACTEC MGIT was used as gold standard. Among the 230 individuals investigated, 21 were MGIT-positive and 209 were MGIT-negative. All MGIT positive samples were also evaluated with the GeneXpert MTB/RIF assay, which confirmed 19 of the 21 MGIT positive sputum samples. Moreover, the GeneXpert assay revealed Rifampicine resistance in 4 of the 21 MGIT positive (19%). Additionally, GeneXpert was performed in a subset of 99 MGIT negative samples and confirmed the result in all cases. Significantly, 4 (19%) of 21 individuals with active TB were HIV positive. In contrast, 12 (6%) of the 209 MGIT negative individuals were infected with HIV. In the group of latent TB, 6 (7%) were HIV-positive and 6 (5%) were positive in the subpopulation with negative Quantiferon results. To our knowledge this is the first cross-sectional study investigating the prevalence of latent and active TB in Gabon. The data suggest a high prevalence for latent and active TB in Lambaréné. The HIV-prevalence among persons with active TB was higher than among persons with latent TB, highlighting the increased risk for TB in the HIV positive population. Although we did not perform phenotypic resistance tests, the GeneXpert data suggest the presence of Rifampin or MDR resistance in the examined population. Furthermore, the data support the use of GeneXpert for diagnosis of active TB in high endemicity countries.

17 - Symposium GI-Infektionen

Chair/s: Jakob Cramer, Gerd Dieter Burchard
16. März 2012, 13:30 - 15:30 Uhr

13:30 - 13:50	K19	Development of glyco-conjugate vaccines for prevention of Typhoid Fever and other Salmonella related diseases A Podda, Siena (I)
13:50 - 14:10	K20	EHEC in den Tropen J Cramer, Hamburg
14:10 - 14:30	K21	Importierte multiresistente Enterobaceriaciae und intestinale Infektionen M Hentschke, Hamburg
14:30 - 14:50	K22	Reizdarm und Reisediarrhö V Andresen, Hamburg
14.50 - 15:05	V45	Childhood gastrointestinal infections in Ghana – pathogen spectrum and disease symptoms R Krumkamp, Hamburg
15:05 - 15:20	V46	Salmonella contamination of drinking water in rural Ghana D Dekker, Hamburg
	P22	High prevalence of Giardia duodenalis assemblage B infection in underweight Rwandan children R Ignatius, Berlin
	P23	Comparison of PCR, copro-antigen test and microscopy for the detection of Giardia Lamblia in returning travellers K Erdinger, Heidelberg

K19 Development of glyco-conjugate vaccines for prevention of Typhoid Fever and other Salmonella related diseases

(A Podda, Head of NVGH Clinical Development & Regulatory Affairs, Siena, Italy)

Typhoid fever causes more than 21 million cases of disease yearly worldwide, with more than 90% of the disease burden being reported in Asia. Based on recent data from South Asia, the incidence Paratyphoid Fever, clinically indistinguishable from Typhoid Fever, is significantly increasing. Epidemiologic data from Africa are less compelling; however most recent reports suggest high incidence of typhoid fever there too. Additionally, available data from various African countries support the epidemiological relevance of non Typhoid Salmonella (NTS) disease, predominantly caused by S. Enteritidis and S. Typhimurium. It is estimated that every year NTS causes in Africa approximately 1 million cases and 100.000 deaths. Both enteric fever in Asia and NTS in Africa are more and more reported in young children; therefore, in order to significantly reduce the disease burden in endemic countries, immunization programs should target children below two years of age and, ideally, these vaccines should be administered concomitantly with routine EPI vaccines. The Novartis Vaccines Institute for Global Health, founded in 2008 with the mission to develop effective and affordable vaccines for neglected infectious diseases of impoverished communities, is developing conjugate vaccines against Salmonella related diseases. More specifically, vaccines against S. Typhi, S. Paratyphi A and NTS (S. Enteritidis and S. Typhimurium) are being developed. The most advanced of these projects, the typhoid vaccine Vi-CRM197, is undergoing phase 2 clinical trials in populations of several endemic countries in Asia.

K20 EHEC in Entwicklungsländern

(JP Cramer, Universitätskrankenhaus Hamburg-Eppendorf, Medizinische Klinik I, Sektion Tropenmedizin und Bernhard-Nocht-Institut für Tropenmedizin)

Gastrointestinale Infektionen und Durchfall stellen nach Infekten der oberen Atemwege die häufigste Todesursache bei Kindern im Alter unter fünf Jahren in Afrika südlich der Sahara dar – noch vor der Malaria. Es liegen jedoch wenige Daten insbesondere zum bakteriellen Spektrum der Infektionserreger vor. Enterotoxische Escherichia coli (ETEC) als eine der häufigsten bakteriellen Erregerarten verursachen zumeist selbstlimitierende Diarrhöen. Enterohaemorrhagische E. coli (EHEC) hingegen können mit schwerwiegenden Komplikationen wie dem hämolytisch urämischen Syndrom (HUS) einhergehen. Einige epidemiologische Untersuchungen aus verschiedenen Ländern Afrikas zeigten eine teils sehr hohe Prävalenz von EHEC bei gesunden Menschen sowie Tieren und auch in der Umwelt wie z.B. in Oberflächengewässern. Auch bei Kindern und Erwachsenen mit Durchfallserkrankungen ließ sich EHEC nachweisen. Die besonderen Bedingungen bei der Nahrungsmittelherstellung und -zubereitung sowie der enge Kontakt zwischen Mensch und Tier könnten dabei auch den Austausch von Virulenzfaktoren wie des Shigatoxins erleichtern. Vorhandene Daten aus Afrika sowie mögliche Konsequenzen für Reisende sollen zusammengefasst werden.

K21 Importierte multiresistente Enterobacteriaceae und intestinale Infektionen

(M Hentschke, Universitätsklinikum Hamburg-Eppendorf)

Gastrointestinale Infektionen stellen eine der häufigsten reiseassoziierten Erkrankungen dar. In dem Übersichtsvortrag sollen Resistenzmechanismen und aktuelle Entwicklungen der Resistenzsituation bei bakteriellen Gastroenteritis-Erregern dargestellt werden.

K22 Reizdarm und Reisediarrhoe

(V Andresen, Israelitisches Krankenhaus, Hamburg)

Das Reizdarmsyndrom (RDS) tritt mit einer Häufigkeit von 10-15% in der Allgemeinbevölkerung auf und manifestiert sich typischerweise durch Schmerzen, Blähungen und Unwohlsein im Bauchraum in Verbindung mit Stuhlgangsveränderungen (z.B. Diarrhoe oder Obstipation). Die Ätiologie des RDS ist nicht vollständig geklärt. Sie ist am ehesten multifaktoriell. Es gibt Hinweise, dass Störungen der viszeralen Sensitivität (insbesondere eine Hypersensitivität) sowie der gastrointestinalen Motilität und Sekretion zur Symptomentstehung beitragen. Dabei mehren sich die Befunde, dass Veränderungen der mukosalen Immunbalance, des enterischen Nervensystems sowie der Darm-Gehirn-Achse hier eine wichtige pathogenetische Rolle spielen. Außerdem scheinen genetische Faktoren und psychosoziale Faktoren zur Krankheitsentstehung beizutragen. Etwa ein Viertel der RDS-Patienten entwickelt das RDS nach einer infektiösen Darmerkrankung. Umgekehrt liegt die Inzidenz des RDS nach Gastroenteritis je nach Studiendesign und Diagnosekriterien zwischen 4% und 32%. Eine Metaanalyse ergab einen Median der Inzidenz von 9,8%. Dabei ist das Risiko, an einem RDS zu erkranken, nach einer Gastroenteritis um das Sechsfache erhöht und bleibt es für einen Zeitraum von zwei bis drei Jahren. Zu den typischen Auslösern eines postinfektiösen RDS gehört die Reisediarrhoe. Die Schwere (z.B. Blut im Stuhl, Gewichtsverlust, Fieber) und Dauer der initialen Durchfallerkrankung erhöhen dabei das Risiko für ein postinfektiöses RDS. Während virale Infekte eher nur eine passagere Symptomatik hinterlassen, scheinen vorwiegend die bakteriellen Darminfektionen das Risiko für ein andauerndes RDS zu erhöhen. Angesichts der zunehmenden Mobilität der modernen Gesellschaft mit einer stark gestiegenen Zahl von Fernreisenden, gewinnt das postinfektiöse Reizdarmsyndrom infolge einer Reisediarrhoe zunehmend an Bedeutung. Insofern erhalten prophylaktische Maßnahmen zur Verhinderung einer Reisediarrhoe auch angesichts der möglichen Langzeit-Folgen einen besonderen Stellenwert. Ob frühe antibiotische und/oder probiotische Interventionen durch einen milderen Verlauf der Reisediarrhoe auch die Entwicklung eines postinfektiösen Reizdarmsyndroms verhindern können, ist derzeit noch unklar.

V45 Childhood gastrointestinal infections in Ghana – pathogen spectrum and disease symptoms

(R Krumkamp, Berhard Nocht Institut für Tropenmedizin, J Adelkofer, S Acquah, N Sarpong, Kumasi Centre for Collaborative Research in Tropical Medicine, A Jäger, E Tannich, J May, Bernhard Nocht Institute for Tropical Medicine)

Especially in developing countries little is known about the frequency of circulating gastrointestinal pathogens and their contribution to the overall morbidity and mortality burden [1]. Aim of the current analysis was to study the frequency of pathogens in stool samples and the disease symptoms associated with these pathogens in children living in a rural district in Ghana. Stool samples were taken from children (<15 years) with gastrointestinal symptoms (GIS) admitted to the Agogo Presbyterian Hospital, in the Ashanti Region, Ghana, between May 2007 and November 2008. Furthermore, everyday randomly selected children without GIS were asked to provide a stool sample to serve as study controls. Frequencies were calculated to describe the distribution of pathogens within the study area. A case-control study was applied to describe the

distribution of pathogens between symptomatic and asymptomatic patients. Stool samples were taken from 1,293 children (787 cases and 506 controls). Most frequent isolates were Giardia lamblia (34.3%), Shigella (25.3%), Campylobacter (20.0%), Blastocystis hominis (13.8%), and Norovirus (11.0%). The age of the children differed strongly between the infections. Norovirus, Rotavirus, and Cryptosporidiun parvum frequently affected younger, whereas Entamoeba coli and Hymenolepis nana were more often found at older ages. In the case control study Rotavirus (OR 13.3; CI 4.9-50.5), Norovirus (OR 2.2; CI 1.5-3.4), and Cryptosporidium parvum (OR 2.9; CI 1.5-6.1) showed positive associations with GIS. Some parasitic infections were inversely associated with GIS, including Giardia lamblia, Blastocystis hominis, Entamoeba coli, and Chilomastix. The study showed the predominance of bacterial as well as parasitic infections in stool samples; GIS, however, is especially associated with viral pathogens. The general use of antibiotics to treat GIS is not supported through these findings. In order to develop treatment and diagnostic guidelines further factors like age, current co-infections and exposure history should be considered.

V46 Salmonella contamination of drinking water in rural Ghana

(D Dekker, Bernhard-Nocht Institut für Tropenmedizin, R Krumkamp, Bernhard Nocht Institute for Tropical Medicine, Infectious Disease Epidemiology, N Sarpong, Kumasi Centre for Collaborative Research in Tropical Medicine, N schwarz, BNI, Y Adu-Sarkodie, Kwame Nkrumah University of Science and Technology, School of Medical Sciences, H Frickmann, Bundeswehrkrankenhaus Hamburg - Fachbereich Tropenmedizin am BNI, K Boahen, J May, Bernhard Nocht Institute for Tropical Medicine, Hamburg)

Salmonellosis is an important food associated disease in developing countries especially affecting children ≤15. Access to safe drinking water in our study area is limited. We therefore investigated the contamination of drinking water sources for both faecal indicator organisms and Salmonellae. Water samples were collected in the Ashanti Akim District, Ghana and a longitudinal study on well contamination was carried out. Samples were cultured on MacConkey and Salmonellae agar. The count of faecal indicator organisms was categorized as follows: 0, 0-10, 10-100, >100 colony forming units (CFU). Suspected Salmonellae were confirmed with a latex agglutination and with the API 20E. The proportion of contamination was calculated. For the longitudinal study, the effect of external risk factors on well contamination were described. Salmonellae were not found in boreholes and pipes but were most predominant in rivers with 14.6% followed by wells with 4.0% of contamination. Wells in particular presented the highest proportion for contamination with >100 CFUs (91.6%), whereas the proportion of contaminated boreholes with >100 CFUs was as low as 3.3%. The longitudinal study showed that wells with a frame (measured in hight) were protective against contamination (OR 0.3; CI 0.1-0.9) whereas the presence of garbage within the well and the raining season proved to be increasing the risk for contamination (OR 5.0; CI 1.0-24.2 and OR 2.8; CI 0.9-8.6). Water from boreholes has proven to be the safest source for portable water. Especially for wells, external factors have a significant influence on the outcome of contamination. The impact of these contaminations on the health of each individual and how often this can lead to infections is not clear. Our study has first indications on how the drinking water quality could be improved, however more data is needed to investigate other possible parameters such as environmental factors

P22 High prevalence of Giardia duodenalis assemblage B infection in underweight Rwandan children

(R Ignatius, Charité Berlin, Tropeninstitut, JB Gahutu, University Teaching Hospital of Butare, Faculty of Medicine, National University of Rwanda, Butare, Rwanda, C Klotz, RKI, C Steininger, C Shyirambere, University Teaching Hospital of Butare, Faculty of Medicine, National University of Rwanda, Butare, Rwanda, M Lyng, A Musemakweri, University Teaching Hospital of Butare, Faculty of Medicine, National University of Rwanda, Butare, Rwanda, T Aebischer, RKI, G Harms, F Mockenhaupt, Institut für Tropenmedizin & Internationale Gesundheit, Charité - Universitätsmedizin Berlin)

Background: Giardia duodenalis is worldwide spread and highly endemic in East Africa. However, knowledge about the effects of giardiasis on child health, particularly those caused by infections characterized by shedding of only few parasites (that are not detected by light microscopy) and by the different genetic subgroups (assemblages A and B) is limited. Objective: To determine the prevalence of G. duodenalis in a high-endemicity setting by PCR vs. light microscopy and to investigate the impact of chronic (or recurrent) giardiasis on child health. Methods: We determined in southern highland Rwanda the prevalences of intestinal parasites by light microscopy (analyzed by three different laboratories) and by PCR assays in 583 children <5 years of age from communities and health facilities, and documented clinical symptoms and signs. Furthermore, G. duodenalis assemblages were genotyped. Results: By PCR, we detected G. duodenalis in 62.8% of the children while microscopy revealed the infection in only 19.6%. Prevalence differed with residence (P = 0.002), increased with age (P < 0.0001), and was reduced with breastfeeding (P = 0.04). Clinically assessed severe malnutrition was observed in 11.9% and 19.2% of 492 community children with submicroscopic and microscopic infection, respectively, but only in 4% of non-infected children (P = 0.0005). Multivariate analysis identified G. duodenalis infection, and microscopically detectable infection in particular, as independent predictors of clinically assessed severe malnutrition and of a weight-for-age z-score <-2. Apart from abdominal distension, G. duodenalis was not associated with gastrointestinal symptoms. In infections with assemblage A parasites (proportion, 13%), a tendency towards an increased rate of abdominal pain was noted. Vomiting was significantly more frequent in these than in individuals infected with assemblage B parasites (8.0% vs. 0.6%, P = 0.048). Conclusions: Light microscopy is not suitable for determining the prevalence of G. duodenalis in high-endemicity areas. Children shedding low parasite numbers constitute unrecognized reservoirs of transmission but may be difficult to identify due to limited symptoms. Prevalences and clinical data suggest that in the study area parasites of assemblage B might be spread endemically while assemblage A parasites might occur epidemically. The association of giardiasis with malnutrition calls for longitudinal studies.

P23 Comparison of PCR, copro-antigen test and microscopy for the detection of Giardia Lamblia in returning travellers

(K Erdinger, A Kapaun, T Junghanss, T Jänisch, Sektion Klinische Tropenmedizin, Universitätsklinikum Heidelberg)

Aims/ Objectives: The aim of this study was to determine the sensitivity, specificity, and positive predictive value (PPV) of copro-Ag test, real-time PCR, and stool microscopy for Giardia Lamblia in travelers` stool samples. Material/ Methods: Clinical information was obtained using a standardized case report form. PCR testing, copro-Ag-testing and microscopy of one stool sample were carried out on each stool sample according to standard operating procedures. Results: Over a one-year period, 320 patients were enrolled in the study. The copro-Ag-test showed a sensitivity of 74.5% and specificity of 98.7% for all patients. In symptomatic patients, it`s sensitivity increased to 89.7%, in asymptomatic patients it decreased to 25.0%. The sensitivity and specificity of the PCR was calculated against the combined reference of microscopy and PCR, assuming that PCR-positive results are not false-positive. In symptomatic patients the sensitivity and specificity of the PCR were determined to be 94.9% and 100% - the PCR missed two patients positive by microscopy. In asymptomatic patients, sensitivity and specificity were both 100%. The sensitivity and specificity of microscopy calculated against the combined reference were 64.1% and 100% - 14 PCR-positive symptomatic

patients and 6 asymptomatic PCR-positive patients were missed by microscopy. Conclusion: The sensitivity of the stool microscopy varied significantly in symptomatic vs. asymptomatic patients. The copro-Ag test could be useful as screening test in symptomatic patients. The stool-PCR for Giardia Lamblia showed high sensitivity and specificity both in symptomatic as well as asymptomatic patients. The results provide support for an algorithmic approach for detection of Giardia Lamblia in stool samples from returning travellers.

18 - Tropenmedizin an der Schnittstelle zur Praxis

16. März 2012, 16:00 - 18:00 Uhr

Der Niedergelassene Tropenmediziner

16:00 - 16:30	V47	Niedergelassener Tropenmediziner - quo vadis? E Krause, Freiburg Podiumsdiskussion Moderation: Erik Krause, Friedrich Holst

Arbeitsmedizin

Chair/s: Gerd Dieter Burchard

16:30 - 16:50	V48	Berufliche Auslandseinsätze - fachliche Anforderungen und rechtliche Aspekte aus Sicht des Mediziners K Wiesenbacher, Berlin
16:50 - 17:05	V49	Consulting in der internationalen Tropen- und Arbeitsmedizin G von Laer, Ziethen

Symposium Reisemedizin

Chair/s: Gerd Dieter Burchard, Jakob Cramer

17:05 - 17:20	V50	Langzeitprophylaxe der Malaria A Kapaun, Heidelberg
17:20 - 17:35	V51	Dengue und Gelbfieberimpfungen: Update A Wilder-Smith, Heidelberg
17:35 - 17:50	V159	Biologicals und (Lebend-)Impfungen E Reisinger, Rostock
17:50 - 18:00	V53	Spektrum und Trends importierter Infektionskrankheiten unter Reiserückkehrern (KH Herbinger, München)
18:00 - 18:10	V52	Comparative study on infection-induced thrombocytopenia among returned travellers KH Herbinger, München
	P24	Import of Staphylococcus aureus from the tropics and subtropics through nasal carriage in travellers: a cohort study P Zanger, Tübingen
	P25	Akute Bilharziose bei Teilnehmern eines studentischen Aufbauprojektes am Tanganjikasee, Tansania. F Steiner, Berlin
	P26	Recurrent subcutanious abscesses caused by Panton-Valentine leucocidine positive methicillin-resistant Staphylococcus aureus after travel to Australia, Indonesia, and Malaysia – a case of surgical treatment odyssey MH Schulze, Würzburg

V47 Niedergelassener Tropenmediziner - quo vadis?

(E Krause, Freiburg)

Diese Podiums - Auditoriumsdiskussion beschäftigt sich mit den beruflichen Belangen niedergelassener Tropenmediziner, über die bisher wenig bekannt ist. Durch sozialgesetzliche und abrechnungstechnische Veränderungen in den letzten 10 Jahren hat sich die Situation niedergelassener Ärzte, die tropenmedizinsch tätig sind, erheblich verschlechtert. Die 96 niedergelassenen Tropenmediziner in Deutschland stellen zwar noch die größte Gruppe der ärztlich tätigen Kollegen mit der Zusatzbezeichnung Tropenmedizin (GBE, 2010), ihre Zahl ist in den letzten 10 Jahren jedoch um fast 30% rückläufig. Über ihren Anteil an Diagnostik und Therapie tropenmedizinisch relevanter Erkrankungen in Deutschland gibt es keine verlässlichen Daten. Außer der DTG, die primär als wissenschaftliche Fachgesellschaft ausgestellt ist, gibt es keinen Berufsverband, der sich um die Belange der niedergelassenen Tropenmediziner kümmert. Zunächst geben Erik Krause, Freiburg, und Fritz Holst, Marburg, welche seit 2011 als neue Fachberater "Niedergelassene Ärzte" in den Vorstand der DTG berufen sind, einen Überblick über die derzeitige Situation. Die anschließende Diskussion dient als Grundlage für einen Forderungskatalog, welcher in den nächsten Monaten und Jahren mit Unterstützung der DTG umgesetzt werden soll. Alle tropenmedizinisch tätigen niedergelassenen Ärzte sind aufgerufen, zahlreich an dieser Diskussionsveranstaltung teilzunehmen und sich an der Vorbereitung für eine Internetplattform einzubringen. Diese Internetplattform, die als geschlossener Mitgliederbereich die Seiten der DTG ergänzen soll, dient dazu, eine bessere Vernetzung niedergelassener Tropenmediziner zu ermöglichen sowie den Dialog innerhalb der niedergelassenen Tropenärzteschaft sowie mit den Tropeninstituten zu erleichtern.

V48 Berufliche Auslandseinsätze – fachliche Herausforderungen und rechtliche Aspekte aus der Sicht des Mediziners

(K Wiesenbacher, Auswärtiges Amt)

˝Tätigkeiten in Tropen, Subtropen und sonstige Auslandsaufenthalte mit besonderen klimatischen Belastungen und Infektionsgefährdungen˝ stellen nicht nur für die Betroffenen eine besondere Herausforderung dar. Arbeitgeber sind auch nach der Nivellierung der gesetzlichen Grundlagen im Jahre 2008 weiterhin verpflichtet präventive medizinische Untersuchungen zum Schutz der Abeitnehmer/-innen bei dafür qualifizierten Ärzten/-innen durchführen zu lassen. Die beauftragten Ärzte müssen die Facharztbezeichnung Arbeitsmedizin oder die Zusatzbezeichnung Betriebs- bzw. Tropenmedizin besitzen. Eine spezielle behördliche Ermächtigung ist für die Mediziner aber seit 12/2008 nicht mehr notwendig. Gefordert ist zwar eine entsprechende Fachkenntnis. Diese bezieht sich auf die Arbeitsplätze, genauso aber auch auf die Klima- und Umweltbedingungen oder medizinische Infrastruktur vor Ort. Tropenmediziner haben zwar eher eine Idee von den besonderen Klima- oder Umweltbedingungen sowie der zu erwartenden Infrastruktur in den unterschiedlichsten Ländern, dafür aber oft kaum Kenntnisse von den zu erwartenden Arbeitsabläufen. Bei Arbeits- und Betriebsmedizinern ist es im Regelfall umgekehrt. Gleichzeitig werden sowohl die beruflichen Langzeitauslandeinsätze als auch die weltweiten Dienstreisen im Rahmen der zunehmenden Globalisierung immer häufiger und die Fragestellungen an die zugezogenen Ärzte/-innen damit immer komplexer. Es gibt zunehmend Beschäftigte, die von einem Land ins nächste versetzt werden. Wer macht die ggfs. notwendige Untersuchung und wer darf es eigentlich? Hilft das Internet? Kann das Internet eigene Fachkenntnis ersetzen oder wenigstens ausreichend ergänzen? Wie kann die deutsche Arbeitsmedizin mit diesen Herausforderungen Schritt halten? Diese und sicher weitere Fragen müssen in den nächsten Jahren dringend beantwortet werden, um den Sinn der arbeitmedizinischen Vorsorgeuntersuchung im Rahmen der Gesundheitsprävention zu erhalten.

V49 Consulting in der internationalen Tropen- und Arbeitsmedizin

(G von Laer, Auswärtiges Amt, berlin)

Der Unternehmer hat beim Auslandsprojekt i. Wes. drei medizinische Risiken: (1) Individuelle Krankheiten hoch spezialisierter (= schlecht ersetzbarer) Mitarbeiter im Ausland. Dem begegnet er durch eine erweiterte (!) G 35 / Tropentauglichkeitsuntersuchung, Impfungen und fachkundige Verhaltensberatung durch auslandserfahrene Arbeits- und (!) Tropenmediziner. (2) Strategische Fehler durch transkulturelle Missverständnisse des deutschen Managements, auch der deutschen Mitarbeiter: religiöse Beleidigungen, die Missachtung von Kastenstrukturen oder Rollenprobleme im gemischten Team können zu psychosomatischen oder Sucht-Krankheiten bzw. zu Fluchtaktionen bei der Belegschaft führen: dadurch scheitern ganze Auslandsgeschäfte. Beispiele sind die Abreise der deutschen Mitarbeiter wegen einer Epidemie, der Sorge regionaler Verstrahlung oder einer Naturkatastrophe. Dort bekommt man dann „kein geschäftliches Bein mehr auf den Boden“. (3) Die Unkenntnis über die Nutzbarkeit der lokalen medizinischen Versorgung: Wenn eine medizinische Primärversorgung, eine akzeptable Erste Hilfe und eine Rettungskette fehlen, sind die Risiken auch für das Geschäft definitiv zu groß. Vergleichbar leichtfertig würde der Betrieb auf anderen Gebieten wie z. B. Finanzen oder Logistik niemals vorgehen. Gründe für den Mangel an spezifischen betriebsmedizinischen Fachberatern sind (1) der hohe Aufwand für die Ausbildung; (2) die Notwendigkeit, diese Erfahrungen in der Fremde zu erwerben, und (3) die lokalen Gesetze, die ein Evaluieren im selbstbewussten Ausland sogar verbieten, zumindest erschweren. Große Konzerne haben eigene arbeitsmedizinische Dienste. Für mittelständische und kleine Betriebe fehlt oft beides: die Risikoberatung und die praktische betriebsärztliche Vorbereitung der Auslandsprojekte. Die betrieblichen Kosten für das Consulting durch den international erfahrenen Betriebsarzt sind sehr begrenzt: schon der Austausch eines einzigen Mitarbeiters im Ausland wegen einer vermeidbaren Erkrankung im Ausland kostet ein Vielfaches. Es lohnt also. Das Referat stellt das International Consulting kurz vor – mit den Möglichkeiten und Problemen der medizinischen Risikoevaluierung betrieblicher Auslandsprojekte - auf der Basis eigener Erfahrungen.

V50 Langzeitprophylaxe der Malaria

(A Kapaun, Sektion Klinische Tropenmedizin, Universitätsklinik Heidelberg)

Unter Berücksichtigung der aktuellen Resistenzlage und dem Infektionsrisiko (für P.falciparum Malaria) stehen uns zurzeit drei wirksame Medikamente zur Langzeitprophylaxe zur Verfügung: Atovaquone/Proguanil (in Deutschland nur für einen Aufenthalt bis 4 Wochen zugelassen, Doxycyclin (in Deutschland für diese Indikation nicht zugelassen) und Mefloquin. Die Wirksamkeit wird für die drei Medikamente als vergleichbar angenommen, aussagekräftige Studien dazu fehlen. Ein wichtiger Aspekt in der präventiven Medizin ist neben der Wirksamkeit jedoch die Sicherheit und Verträglichkeit der eingesetzten Medikamente (oder Maßnahmen), insbesondere wenn sie vorbeugend über einen längeren Zeitraum erfolgen muss. Aussagekräftige Studien zur Verträglichkeit zeigten einen geringen Vorteil von Atovaquone/Proguanil und Doxycyclin gegenüber Mefloquin. Ein Viertel der Studienteilnehmer waren Soldaten und entsprechend hoch war der Anteil von Männern. Gender-spezifische Unterschiede konnten eventuell nicht ausreichend berücksichtigt werden. Der Anteil von Kindern in den Studien zur Malariaprophylaxe war gering, sodass hier die Datenlage eher dürftig ist. In der Langzeitberatung verdienen zwei Personengruppen unsere besondere Aufmerksamkeit: Familien mit Kindern (und /oder Schwangeren), und die Gruppe der jungen „Expatriats“, die häufig besonders exponiert sind und eine regelmäßige medikamentöse Prophylaxe verweigern. Daten zur Wirksamkeit und Verträglichkeit der vorhandenen Medikamente insbesondere für Kinder und Schwangere und für die Langzeitprophylaxe liegen vor und sollten in unsere Empfehlungen und Beratungen mit einfließen. Die Aufgabe eines reisemedizinisch ausgebildeten Arzt/Ärztin ist es auf der Grundlage der DTG- Malariaempfehlungen eine individuelle Beratung durchzuführen, wobei insbesondere die oft unzureichende medizinische Infrastruktur vor Ort zu berücksichtigen ist. Eine der jeweiligen Resistenzlage angepasste Stand-by Therapie mit sorgfältiger Expositionsprophylaxe kann außerhalb der Hauptübertragungszeiten eine Alternative zur kontinuierlichen Prophylaxe sein.

V159 Biologicals und (Lebend-)Impfungen

(E Reisinger, Rostock)

V51 Yellow fever and dengue vaccinations: what is new?

(A Wilder-Smith, Institute for Public Health, University of Heidelberg)

Yellow fever: The changing epidemiology of yellow fever and continued reports of rare but serious adverse events associated with yellow fever vaccine (yellow fever vaccine associated visceral disease in particular) have drawn attention to the need to revisit criteria for the desgination of

areas with risk for yellow fever and to revise the vaccine recommendations. WHO convened a working group of international experts including the presenter to establish criteria for additions to or removal from the list of countries with risk for yellow fever virus transmission, to update yellow fever risk maps, to harmonize the WHO and CDC maps, and to revise the recommendations for vaccination for international travel. This talk will detail the recommendations made by the working group and the rationale behind them. Dengue fever: Many of the countries where dengue is endemic are popular tourist destinations and the disease is an increasingly important problem encountered by international travelers. This talk reviews the challenges of vaccine development, current vaccine strategies and the prospects for the availability of a vaccine for travelers in the future. To be licensed as a travelers' vaccine, vaccine trials must address safety, immunogenicity, duration of protection, schedules and boosters in adults (in particular in immunologically naive adults), trials that may differ from those conducted in endemic countries. Vaccine schedules with long intervals would be a major obstacle to the uptake of the vaccine by travelers. Enhanced reactogenicity or interference with immunization must be effectively excluded for travelers with prior or concurrent vaccination against other flaviviruses, such as yellow fever or Japanese encephalitis. Licensing dengue as a travelers' vaccine poses unique challenges beyond the development of a vaccine for the endemic population.

V53 Spektrum und Trends importierter Infektionskrankheiten unter Reiserückkehrern

(KH Herbinger, Medizinische Poliklinik, , HD Nothdurft, , F von Sonnenburg,
T Löscher, Abteilung für Infektions- und Tropenmedizin, Ludwig-Maximilians-Universität München)

Hintergrund Im Jahre 2011 gab es weltweit erstmals mehr als 1 Milliarde internationaler Reisen, wovon über 45 Millionen von Deutschland aus getätigt wurden. Durch die zunehmende Zahl von Reiserückkehrern, insbesondere derer, die sich zuvor in den Tropen und Subtropen aufhielten, stieg auch die Zahl einiger importierter Infektionskrankheiten. Methoden Die vorliegende epidemiologische Studie analysierte demographische, Reise-spezifische und medizinische Daten von 24.473 Reiserückkehrern, die sich in der Zeit von 1999 bis 2010 in der Abteilung für Infektions- und Tropenmedizin der Universität München v. a. mit importierten Infektionskrankheiten vorgestellt hatten. Resultate Die große Mehrzahl der Patienten war in Deutschland geboren (84,2%) und zwischen 20 und 44 Jahre alt (66,5%), wobei der Anteil älterer (>64 Jahre) erkrankter Reiserückkehrer während der Beobachtungszeit von 2,6% auf 7,2% signifikant zugenommen hat. Die meisten Reiserückkehrer kamen aus Asien (42,0%), aus Afrika (33,4%) und aus Lateinamerika (18,1%). Die häufigsten Reisearten waren Abenteuer/Rucksackreisen (44,7%), Pauschalreisen (19,8%), Geschäftsreisen (14,6%) und Reisen als VFR (visiting friends and relatives; 11,4%). Rund ein Fünftel der Patienten war berufsbedingt verreist. Bei Erstvorstellung waren die häufigsten Symptome Diarrhö (30,7%), Fieber (21,7%) und Hauterscheinungen (18,5%). Die häufigsten diagnostizierten Erkrankungen waren Giardiasis (3,7%), Campylobacter Enteritiden (2,3%), superinfizierte Insektenstiche (1,6%), kutane Larva migrans (1,3%), Amöbiasis (1,0%), Shigella Enteritiden (1,0%), Malaria (0,9%) und Dengue Fieber (0,9%). In der Beobachtungszeit konnte eine signifikante Abnahme von Fällen mit Malaria und signifikante Zunahme von Fällen mit Dengue Fieber, Salmonella Enteritiden (0,8%), akuten HIV-Infektionen (0,2%) und Chikungunya (0,1%) nachgewiesen werden. Als häufigste Verursacher der Reisediarrhö konnten durch kontrollierte Studien EAEC (36,9%), ETEC-ST (16,2%), Campylobacter jejuni (15,9%), Noroviren (8,9%) und Shigella spp. identifiziert werden. Als häufigste importierte Hauterkrankungen wurden Pyodermien (20.3%), Insektenstiche (16,8%), kutane Larva migrans (7,9%) und Ektoparasitosen (5,6%) diagnostiziert. Schlussfolgerungen Ausgiebige epidemiologische Analysen von Daten über importierte Infektionskrankheiten und deren Risikofaktoren erlauben eine effizientere reisemedizinische Beratung für Reisewillige, mit dem Ziel, ihr Infektionsrisiko während der Reise, insbesondere jener in den Tropen, zu verringern.

V52 Comparative study on infection-induced thrombocytopenia among returned travellers

(KH Herbinger, Medizinische Poliklinik, Ludwig-Maximilians-Universität München, M Schunk, Abteilung für Infektions- und Tropenmedizin, HD Nothdurft, Abteilung für Infektions- und Tropenmedizin, F von Sonnenburg, Abteilung für Infektions- und Tropenmedizin, T Löscher, G Bretzel, Department of Infectious Diseases and Tropical Medicine, LMU)

Background Thrombocytopenia is a frequent finding among ill returned travellers and may be caused by a large number of different conditions, including infectious diseases specific or typical for tropical and subtropical regions. In order to assess the diagnostic significance of thrombocytopenia we investigated a large cohort of travellers after return. Methods This comparative study analyzed data of 19,473 returned travellers consulting the outpatient travel clinic at the University of Munich between 1999 and 2009. Out of them, 732 (3.8%) travellers were diagnosed with thrombocytopenia and their data were compared with those of 18,741 travellers with normal platelet counts. Results Thrombocytopenia was significantly more frequent among patients with malaria (63%), acute HIV infection (48%), dengue fever/dengue haemorrhagic fever (DF/DHF; 47%), Epstein-Barr virus infectious mononucleosis (23%), paratyphoid/typhoid fever (14%), and rickettsiosis (12%). Malaria and DF/DHF caused 25% of all cases of thrombocytopenia (platelet count <140,000/microlitre) and 75% of all cases of severe thrombocytopenia (platelet count <30,000/microlitre). Sex, age, country of origin, duration and type of travel were not significantly correlated with thrombocytopenia. The most frequent travel destinations were Asia (42%), Africa (33%), and Latin America (14%). Travellers to Sub-Saharan Africa (high risk for malaria) and to South/South East Asia (high risk for DF/DHF) had the highest relative risk for thrombocytopenia. Conclusion Platelet count among returned travellers is an essential screening parameter, as thrombocytopenia is highly correlated with important infectious diseases, particularly with malaria and DF/DHF.

P24 Import of Staphylococcus aureus from the tropics and subtropics through nasal carriage in travellers: a cohort study

(P Zanger, Eberhard Karls Universität, Institut für Tropenmedizin, D Nurjadi, Eberhard Karls Universität, Institut für Tropenmedizin, P Kremsner, Eberhard Karls Universität, Institut für Tropenmedizin)

Objectives: Acquisition of nasal colonization abroad and subsequent import into the domestic population of bacteria may promote the dissemination of exchangeable virulence factors and thus the evolution of more virulent Staphylococcus aureus strains (1). This study investigated whether travel to the tropics and subtropics leads to nasal carriage and import of S. aureus. Methods: The nasal carriage status (non-, intermittent, persistent carriage) of 503 travellers and 620 non-travellers was ascertained at two time points. New acquisition of S. aureus nasal carriage (main outcome) was analyzed by exposure to travel during follow-up (main exposure). Risk factors for nasal carriage at baseline, their influence on change in nasal carriage status and risk factors during follow-up were studied for a potential confounding effect. Results: Of 1,123 individuals included at baseline 943 were available for follow-up (loss 16.0%). Loss to follow-up was higher among travellers (21.5% versus 11.8%). Persistent nasal carriage at baseline was more likely in men, non-smokers, women using hormonal contraceptives, pet-owners, with increasing age and decreasing time period between swabs. Smoking, inpatient stay within 3 months before enrolment, hormonal contraception, follow-up time and antibiotic intake during follow-up were found to be associated with a change in S. aureus nasal carriage during follow up. Travel did not

have an effect on S. aureus-import (OR 1.23, 95%CI 0.70-2.15, P=0.5) and showed only a weak and non-significant trend towards such an effect after adjusting for antibiotic use during follow-up (adjusted OR 1.35, 0.76-2.41, P=0.3). There was evidence for interaction of an association of travel with S. aureus-gain and follow-up time (likelihood ratio test P=0.06): the OR comparing import of S. aureus in travellers to non-travellers with long follow-up was 1.75 (0.79-3.84, P=0.2) while the OR for a similar comparison in individuals with short follow-up was 0.49 (0.14-1.72, P=0.3). Loss of S. aureus-carriage was more common in travellers and partially confounded by antibiotic use during follow-up. Conclusions: This study does not provide conclusive evidence for the acquisition of S. aureus nasal carriage during travel to the tropics and subtropics. A trend, however, indicates, that such import may exist in the subgroup of long-term travellers. Genotypic characterisation of pre- and post travel isolates may provide additional evidence to further support this hypothesis.

P25 Akute Bilharziose bei Teilnehmern eines studentischen Aufbauprojektes am Tanganjikasee, Tansania.

(F Steiner, Charité Universitätsmedizin, B Friedrich-Jaenicke, Institut für Tropenmedizin und Internationale Gesundheit Berlin, S Poppert, Bernhard-Nocht-Institut Hamburg, D Wichmann, Klinik für Intensivmedizin und Sektion Infektiologie/Tropenmedizin, Universitätsklinikum Hamburg-Eppendorf, Hamburg, G Harms, R Ignatius, Charité Berlin, Tropeninstitut, S Dieckmann, Institut für Tropenmedizin und Internationale Gesundheit Berlin)

Die Akute Bilharziose ist eine wichtige Fieber-Differentialdiagnose bei Rückkehrern aus endemischen Gebieten. Klinik und Anamnese stehen dabei im Vordergrund. Die labordiagnostischen Möglichkeiten im Frühstadium sind limitiert. Die Verdachtsdiagnose einer Akuten Bilharziose basiert in den meisten Fällen auf dem Expositionsrisiko, dem Fieber und der Eosinophilie. Die Erhärtung der Verdachtsdiagnose erfolgt durch serologische Untersuchungen. Eine Möglichkeit der Diagnosesicherung ist der DNA-Nachweis per Schistosoma spp.- PCR. Bei drei von 20 exponierten Teilnehmern eines studentischen Aufbauprojektes am Tanganjikasee, Tansania konnte eine Akute Bilharziose diagnostiziert werden (3 Männer; 25, 26, 28 Jahre alt). Alle litten unter Fieber, Schwitzen und Husten und/oder Druck auf der Brust. Süßwasserkontakte wurden mit 15, 50 und 75 über einen Zeitraum von 37, 50 und 68 Tagen an drei verschiedenen Orten am Tanganjikasee angegeben. Die Zeitdauer vom ersten Süßwasserkontakt bis zum Beginn der Symptomatik betrug 47, 47 bzw. 62 Tage. Die Zeitdauer vom letzten Süßwassererstkontakt bis zum Symptomatikbeginn betrug 10 bzw. 12 Tage, in einem Fall (Patient 2) gab es weitere Süßwasserkontakte nach Krankheitsbeginn. Die Dauer von Erstsymptom (Fieber) bis zur Vorstellung im Tropeninstitut Berlin betrug 12, 25 bzw. 32 Tage. Die absolute Eosinophilenzahl lag bei Erstkontakt bei 384/µl, 5474/µl bzw. 2292/µl und stieg auf 4539/µl, 9853/µl bzw. 3713/µl an. Die serologische Untersuchung (ELISA, IFT, HAT) war bei allen drei Patienten positiv und die Diagnose konnte durch PCR nach 29, 33 bzw. 32 Tagen nach Erstsymptom bestätigt werden. Schistosomeneier wurden in keinem Fall nachgewiesen. Die Praziquanteltherapie erfolgte 107, 42 bzw. 100 Tage nach Erstsymptomatik. Bei fünf weiteren exponierten Personen konnte keine Bilharziose nachgewiesen werden. Die übrigen 12 Projektteilnehmer haben sich bisher nicht zur Untersuchung vorgestellt. Die Anamnese, die klinische Untersuchung, der Ausschluss lebensbedrohlicher Differentialdiagnosen und die Eosinophilie stehen im Vordergrund der Diagnostik der Akuten Bilharziose. Die Fragen nach Süßwasserexposition und Erkrankungsfällen im Umkreis sind hervorzuheben. Neben den gängigen Labortests ist die Schistosoma spp.-PCR eine nützliche ergänzende Methode zur Diagnosesicherung.

P26 Recurrent subcutaneous abscesses caused by Panton-Valentine leucocidine positive methicillin-resistant Staphylococcus aureus after travel to Australia, Indonesia and Malaysia – a case of surgical treatment odyssey

(MH Schulze, Missionsärztliche Klinik, T Lam, Institute of Hygiene and Microbiology, University of Würzburg, M Zwicker, Medical Mission Hospital, Department of Tropical Medicine, A Stich, Medical Mission Hospital, Department of Tropical Medicine)

A 21 years old Caucasian man consulted in our out patient department because of recurrent subcutaneous abscesses following travels to Australia, Malaysia and Singapore during the previous five months. The first abscess appeared in the left arm pit shortly after his return home. He went to his general practitioner and was prescribed oral amoxicillin/clavulanic acid. A surgeon incised the abscess and material was sent for culture and sensibility testing. Microbiological culture revealed methicillin-resistant Staphylococcus aureus (MRSA) resistant to ß-lactams, but susceptible to quinolones, doxycycline, gentamicin, erythromycin, clindamycin, cotrimoxazole, vancomycin, linezolid, daptomycin, tigecycline, fusidic acid, fosfomycin, and rifampicin. Treatment was discontinued, but new abscesses emerged repeatedly all over the body (arm pits, buttocks, genitals, trunk, lower and upper extremities) and were treated surgically without additional antimicrobial therapy. After 13 relapses over a period of 8 weeks, the patient consulted our department. At this time he suffered from an abscess in the left axilla, which showed little fluctuation. Upon aspiration material was sent for culture and sensibility testing, and oral treatment with cotrimoxazole, rifampicin and clindamycin was initiated to be given for 3 weeks. Another incision of the abscess was refused. After 9 days of treatment the abscess had disappeared and only residual skin changes with little livid coloration and induration had remained. Microbiologic culture resulted in a MRSA again with the same antibiotic susceptibility pattern as shown for the previous isolate. Molecular analysis revealed spa type t019 and was positive for Panton-Valentine leucocidin (PVL) production. Community acquired methicillin-resistant Staphylococcus aureus infections in Asia and Oceania are commonly associated with spa type t019 and are often only resistant to ß-lactams [1,2]. Our patient used public transport during his journey and reported overcrowded vehicles. The physical contact to natives or migrant workers may represent a possible mode of transmission [3]. Surgical treatment alone in PVL positive MRSA must be considered as insufficient. As MRSA spa type t019 is most frequently only resistant to ß-lactams, a good choice is at hand for antimicrobial treatment. A combination therapy should be preferred, cotrimoxazole together with rifampicin can be considered as first choice [4,5]. The addition of clindamycin is worth considering in suspected PVL positive MRSA. Clindamycin, a protein-synthesis inhibitor, is known to markedly suppress PVL production as staphylococci approach stationary phase [6]. Recommended treatment durations of MRSA associated skin and soft tissue infections range between 5 to 10 days [5,7]. As the abscess was not incised in our patient combination therapy was given for 3 weeks.

19 - Disease Control and Health Security from a Global Perspective

Chair/s: Manuela de Allegri, Olaf Müller
16. März 2012, 10:45 - 12:30 Uhr

10:45 - 11:05	K23	Integrated control concepts for vector borne diseases A Kröger, Geneva
11:05 - 11:25	K105	Eradication and elimination as concepts for disease control O Müller, Heidelberg
11:25 - 11:40	V54	Estimating vaccination coverage in young children: Prospective study nested into a health and demographic surveillance system in Burkina Faso NJM Ouédraogo, Heidelberg
11:40 - 11:55	V55	The burden of Non-Communicable Diseases in Low and Middle-Income Countries H Prytherch, Heidelberg
11:55 - 12:10	V56	The Integrated Disease Surveillance Strategy - Did it rally work in Maharashtra, India? R Phalkey, Heidelberg
12:10 - 12:25	V57	Universal Coverage with Malaria Control Interventions: Achievements and Challenges in Ruaral Burkina Faso M De Allegri, Heidelberg

K23 Integrated control concepts for vector borne diseases

(A Kroeger, World Health Organization, Genf)

Disease control programmes are usually organized as vertical programmes which is reflected in specialized staff for managing specific diseases (such as malaria, dengue, leishmaniasis, HIV-AIDS, Tuberculosis and others) at Ministries of Health down to district health systems. A typical example for such a vertical programme is malaria control during the eradication era from the 1950s to the 1980s; the programme included malaria diagnosis, treatment at village level and most prominently vector control. With the decline of this global programme the limitations of such an approach became evident (particularly the inefficiency of a parallel system, corporate identity of malaria workers with privileges, centralized drug distribution according to population numbers and not according to the burden of malaria) so that in most countries control services were integrated into the general health services. However, this integration was in many countries only partial and vector control services continue to be isolated from clinical management of disease and often also from health promotion and social mobilization activities. Other control programmes for vector borne diseases experienced a similar history, notably Lymphatic Filariasis and Onchocercosis (both of them with a shift in emphasis from vector control to mass administration of drugs) and dengue. Without a proper analysis of the prospects and limitations of vertical, non-integrated vector borne disease control versus integrated (horizontal) disease control or mixtures of them (taking advantage of the relative strength of each of these approaches), the international community is moving back to vertical control programmes through the Global Fund, Roll Back Malaria, Stop TB and others. Does it make sense? The presentation will raise questions and try to answer some of them.

K105 Eradication and elimination as concepts for disease control

O Müller, Heidelberg

V54 Estimating vaccination coverage in young children: Prospective study nested into a health and demographic surveillance system in Burkina Faso

(NJM Ouédraogo, Ruprecht University Heidelberg)

Background: Reliable estimates of immunization coverage are the basis for rational policy making, program implementation and evaluation. Vaccination coverage is usually measured using administrative data or surveys, both having a number of methodological problems. Methods: In this study we estimate vaccination coverage in children using a dataset of 11.906 under five year old children from an existing Health and Demographic Surveillance System (HDSS) in north-western Burkina Faso. Data collection on vaccination coverage (mainly based on information recorded on available vaccination cards) was added to the routine HDSS data collection rounds over the period September 2008 until December 2009. We describe overall and disease-specific vaccination coverage according to sex, age and locality. Results: Vaccination coverage for individual antigens ranged from 80% for measles vaccination to 94% for OPV1. There were no differences in vaccination coverage between boys and girls but a tendency towards better coverage for OPV as well as for DTP/DTPHibHepB in rural areas compared to urban areas. Full immunization coverage in children aged 12-23 months was 81%, with a significantly higher coverage in rural compared to urban areas (82% vs.77%, $p<0.0001$). Discussion and conclusion: Results from this study largely support findings from other data sources on vaccine coverage in young children of Burkina Faso having much improved in recent years. There seems to be slightly better vaccination coverage in rural compared to urban area, which needs further consideration. HDSS-based vaccination data collection appears to be a promising method for studying EPI programs.

V55 The burden of Non-Communicable Diseases in Low and Middle-Income Countries

(H Prytherch, evaplan GmbH am Universitätsklinikum Heidelberg, A Jahn, Universität Heidelberg, M Marx, evaplan GmbH am Universitätklinikum Heidelberg)

Aims: A background paper on Non-communicable Diseases (NCDs) in low- and middle-income countries (LMICs) was commissioned by the German International Cooperation (GIZ). The paper was required to support the German Federal Ministry for Economic Cooperation and Development (BMZ) in preparing for the UN High-level Meeting on NCDs in September 2011. Methods: A review of the literature, including policy papers was undertaken. Moreover, the current international strategies were critically assessed from which recommendations for the German Development Cooperation (GDC) were derived. Results: NCDs are currently the leading cause of death worldwide (WHO, 2010). The four main NCDs are cardiovascular diseases, cancers, chronic respiratory diseases and diabetes. Nearly 80% of NCD deaths occur in LMICs. It is only in the Africa region, that NCDs are not the most frequent current causes of death and this is predicted to change by 2030. The current proliferation

of NCDs has many causes, including ageing populations, the negative effects of globalization, particularly unplanned urbanisation and changes in lifestyles. Moreover, prevailing health inequities and the Social Determinants of Health influence which individuals and population groups are more or are less vulnerable to these behavioural risks. Beyond the human suffering the overall economic costs of NCDs have now been recognised. In many LMICs the main focus of NCD health care is hospital centred acute care which has largely to be carried by households. In low income countries (LICs) the extent of these out-of-pocket payments can be catastrophic and entrench families in poverty. Conclusions/Implications: Primary prevention need to be the cornerstone of the response to NCDs. Urban land-use and planning need to be improved. Further cost-effective interventions include taxation of tobacco, alcohol and unhealthy foods. Secondary prevention, early disease detection and timely treatment are also effective measures. These can be achieved by the identification of high risk individuals and selective disease screening at primary health care level and their follow-up with affordable treatment. GDC is advised to continue its Human Rights based approach towards Universal Access, following the Health in all Policies construct, emphasising prevention of NCDs and tackling their underlying social determinants, as well as by reinforcing its support for health system strengthening. The support and valuable feedback provided by Dr. Angelika Schrettenbrunner and other members of the German Development Cooperation NCD working group is acknowledged.

V56 The Integrated Disease Surveillance Strategy- Did it really work in Maharashtra, India?

(R Phalkey, University of Heidelberg, N Ashtekar, State Surveillance Cell, Integrated Disease Surveillance Project, Ministry of Health and Family Welfare, S Shukla, University of Pune, DP Awate, State Surveillance Cell, Integrated Disease Surveillance Project, Ministry of Health and Family Welfare, M Marx, evaplan GmbH am Universitätklinikum Heidelberg)

The Government of India adapted the Integrated Disease Surveillance strategy in 2004 through the Integrated Disease Surveillance Project (IDSP) in 9 states including Maharashtra. A baseline assessment of the implementation status of the system was necessary to document its performance. Methods The system was assessed along 4 key areas- structure; core and support functions; and surveillance quality using the modified CDC and WHO guidelines for the assessment of surveillance systems. Data was collected through an onsite survey using structured questionnaires in 8 randomly selected districts after pilot. Randomly selected 46 health facilities and 24 labs were visited. Data was entered, cleaned and analyzed in SPSS version 17. Results Standardized case definitions and trigger levels are well defined for the state. However, only 14% of the health facilities visited had a physical copy of the manual / technical guidelines. Consistency of reporting during 2011 was 30% on the portal and 45% on Email. Only 13% of the health facilities visited analysed their data at local level. About 64% districts reported data “on time” during 2011. The system reported 195 outbreaks in 2011 of which 84 % were reported late. Only 37% of the staff in position was trained in IDSP. Disease case definitions were correctly stated by only 50% respondents. Reporting schedules, including definition of the “week” was not well understood by peripheral staff (42.2%). Logistic difficulties such as lack power back up (33%), vacant Data Entry Operator positions (29%) and irregularly functioning IDSP portal together with interrupted internet connections delayed data reporting. Conclusion This is the first “much required” assessment of IDS in Maharashtra after its adoption in 2005. The system is improving steadily but rather slowly. Strengthening of the laboratory, training, supervision and feedback components of the system will considerably improve its performance.

V57 Universal Coverage with Malaria Control Interventions: Achievements and Challenges in Rural Burkina Faso

(M De Allegri, University of Heidelberg, VR Louis, J Tiendrebeogo, A Souares, M Yé, Y Tozan, A Jahn, O Mueller, University of Heidelberg)

This paper reports on a study which assessed coverage with malaria control interventions in rural Burkina Faso, namely insecticide-treated mosquito nets (ITN) ownership; intermittent preventive treatment (IPTp) for pregnant women; and artemisinin-based combination therapy (ACT) for under-five children. The study also addressed the distributional impact of such interventions, with specific reference to equity. The study used data from a representative household survey conducted on 1106 households in the Nouna Health District in 2010. Findings indicated that 59% of all households owned at least one ITN, 67% of all pregnant women received IPT at least once, and 34% of under-five children reporting a malaria case were treated with ACT. Multivariate logistic regression revealed that higher socio-economic status, ownership of at least one radio, and living in a village within a Health and Demographic Surveillance System were significantly positively associated with ITN, IPTp, and ACT coverage. ITN coverage was higher among households in villages which had previously hosted an ITN trial and/or the most favourable arm of a trial. Comparing current findings with previous estimates suggests that the country has made substantial progress towards scaling up malaria control interventions, but that current coverage rates are still far from achieving the universal coverage targets set by the Roll Back Malaria Partnership. In addition, current coverage patterns reveal the existence of multiple inequities across groups, suggesting that current policies are inadequate to achieve equitable scaling up. Future planning of malaria control interventions ought to take into consideration current inadequacies and lead to programs better designed to overcome them.

20 - Financing global health and access to medicine

Chair/s: Peter Tinnemann, Albrecht Jahn
16. März 2012, 13:30 - 15:30 Uhr

13:30 - 13:50	K106	Making best use of research results through equitable licensing and related financing concepts P Tinnemann, Berlin
13:50 - 14:10	K107	Access to medicine, a European priority C Knauth, Brüssel
14:10 - 14:25	V58	Die Verantwortung von Universitäten R Jahn und UAEM, Heidelberg
14:25 - 14:40	V59	Technology Transfer & Equitable Licensing J Rauch, Heidelberg
14:40 - 14:55	V60	Pro-poor health programs and interventions: Who's zooming who? M Thiede, Berlin
14:55 - 15:30		Panel Discussion access to medicine and management of intellectual property

K106 Making best use of research results through equitable licensing and related financing concepts
P Tinnemann, Berlin

K107 Access to medicine, a European priority
C Knauth, Brüssel

V58 Die Verantwortung der Universitäten für den globalen Zugang zu Medikamenten
(R Jahn, Universities Allied for Essential Medicines)

UAEM (Universities Allied for Essential Medicines) ist eine weltweit arbeitende studentische Organisation mit dem Ziel, den globalen Zugang zu lebenswichtigen Medikamenten zu verbessern. Um dies zu erreichen, fordern wir die Neuausrichtung der biomedizinischen Forschung am globalen Bedarf, sowie anhand von humanitären Gesichtspunkten und die sozial verantwortliche Lizenzierung der universitären Forschung nach den Prinzipien des „Equitable Access Licensing“. Der Ursprung von UAEM liegt in einem Protest an der Universität Yale. Im Jahr 1994 hatte die Pharmafirma Bristol-Myers-Squibb ein Medikament gegen HIV auf den Markt gebracht, das den an der Universität Yale entdeckten Wirkstoff d4t enthielt. Eine Behandlung mit diesem Medikament (Zerit) kostete jährlich 10.000-15.000$ und war somit für einen Großteil der Weltbevölkerung, insbesondere im südlichen Afrika, nicht zugänglich. Im Jahr 2001 begannen die Studenten der Universität Yale in intensiven Protesten auf dem Campus und durch die Medien das Aussetzen des Patentes auf Zerit zu fordern. Nach einigen Monaten lenkten die Universität Yale und Bristol-Myers-Squibb ein und verzichteten auf die Durchsetzung des Patentes in Südafrika. Die Kosten für eine Therapie mit d4t fielen dadurch in wenigen Jahren auf unter 300$ jährlich. Diese Erfahrung war der Anlass zur Gründung von Universities Allied for Essential Medicines. Zur Zeit finden weltweit 40% der Forschung allein zu vernachlässigten Krankheiten an Universitäten statt. Dies führt zu einem großen Anteil an Forschungsergebnissen, die von Universitäten patentiert werden und bei dem diese im positiven Sinne erheblichen Einfluss auf die Lizenzierung und damit auf den weltweiten Zugang nehmen könnten. Dies bringt eine globale Verantwortung mit sich, der sich die Universitäten bisher nur eingeschränkt stellen. Wir als Studenten sehen uns daher in der Pflicht, unter den Mitgliedern der Universitäten einen Diskurs zu initiieren, wie mit den Ergebnissen staatlich finanzierter Forschung verantwortlicher umgegangen werden kann und nach welchen Kriterien diese künftig ausgerichtet sein sollte.

V59 Technologietransfer und Equity licensing
(J Rauch, TechnologieTransfer-Team (TT-Team), V Cleeves, Technologie Transfer Heidelberg)

Die Kommerzialisierung von Ideen und Erfindungen neuer Technologien ist die Grundlage des Technologietransfers. Die notwendige Voraussetzung einer kommerziellen Wertschöpfung investitionsbedürftigerInnovationen ist eine Schutzrechtsanmeldung (durch Patente oder Gebrauchsmuster), denn ohne ein Patent wird kein Unternehmen zum Beispiel in die risikoreiche und hochpreisige Entwicklung eines Medikamentes investieren. Medikamentenentwicklung in Deutschland findet auch in Kooperation mit öffentlichen Einrichtungen statt, die die Rechte an den Neuentwicklungen an Pharmaunternehmen auslizenzieren. Durch die Wertschöpfungskette, von der öffentlichen Forschung in die Industrie zu den Patienten, erhält die Gesellschaft die Steuergeld-Investitionen in die öffentlichen Forschungseinrichtungen wieder zurück. Im Rahmen zunehmender Globalisierung werden, auch wenn 3. Weltländer schon davon profitieren, das Gefälle zu den Industriestaaten nicht geringer, sondern erzeugen weitere Abhängigkeiten, die es diesen Ländern, trotz enormer finanzieller Hilfen (53,8 Milliarden Euro der EU in 2010),mittelfristig nicht ermöglichten ihre sozio-ökonomischen Herausforderungen zu bewältigen. Die Bevölkerung dieser Länder leidet nicht nur an mangelhaften Lebensumständen, sondern auch an einer medizinischen Unterversorgung, insbesondere an nicht bezahlbaren Medikamenten. Ein möglicher öffentlicher Beitrag wäre also die Lizenzgeschäfte derart zu gestalten, dass ein möglichst großer Nutzen für Drittweltländer generiert wird. Inwieweit das Equity Licensing hierzu einenfür alle Beteiligten wertvollen Beitrag liefern kann, soll anhand möglicher Strategien diskutiert werden. Die technologytransferheidelberg GmbH begleitet die angemessene schutzrechtliche Sicherung und Vermarktung von Forschungsergebnissen in der biomedizinischen Forschung der Medizinischen Fakultät Heidelberg und des Universitätsklinikums und unterstützt die Anstrengungen, die aus öffentlichen Mitteln finanzierte Forschung der schnelleren Anwendung außerhalb der Wissenschaft zugänglich zu machen.

V60 Pro-poor health programs and interventions: Who’s zooming who?
(M Thiede, evaplan GmbH am Universitätklinikum Heidelberg)

The cost-effectiveness of programs and interventions has been been the subject of many research programs and has occasionally gained policy relevance. Increasingly, the socio-economic dimension of interventions or the “benefit incidence” has been analyzed and discussed. Still programs and interventions often do not fully address the health and socio-economic needs of disadvantaged groups. In addition, access to interventions is frequently jeopardised by lack of geographic availability, direct non-medical costs associated with the utilisation of services as well as issues around (cultural) acceptability. This presentation intends to operationalize the concept of “pro-poorness” and introduces a conceptual framework that aims at a systematic approach allowing an analysis of factors that determine to what degree a program or intervention may be considered “pro-poor”. The presentation of the framework will be illustrated with examples from a range of interventions aimed at infectious diseases. The approach allows a classification of interventions in terms of their socio-economic impact, it also provides an analytical structure to investigate the influences of health system design in the respective settings as well as the role of public-private mix and broader contextual issues. While focussing on common pitfalls and success factors of program implementation, the approach also seeks to highlight factors specific to the study settings that may facilitate or impede equity in uptake and outcome of interventions.

21 - Policies, partnerships and Networks for Global Health

Chair/s: Malabika Sarker
16. März 2012, 16:00 - 18:00 Uhr

16:00 - 16:20	K24	The contribution of product development partnerships and the example of the European Vaccine Initiative O Leroy, Heidelberg
16:20 - 16:35	V61	Evaluating and monitoring the implementation of good governance principles in health - some practical tools F Stierle, Heidelberg
16:35 - 16:50	V62	Efficiency of essential maternal health services in selected primary care facilities in Ghana M Dalaba, Heidelberg
16:50 - 17:05	V63	The economic impact of the insured patients with chronic and acute illnesses in Indonesia: A qualitative inquiry B Aji, Heidelberg
17:05 - 17:20	V160	Research partnerships from a global perspective M Sarker, Dakhar, Bangladesch
17:20 - 17:35	V64	Public private partnerships in healthcare vs. Public private competition for human resources – a case study from the southern zone of Tanzania P Tabatabei, Heidelberg
17:35 - 17:50	V65	Global Health begins at home: The Heidelberg Initiative A Jahn, Heidelberg

K24 The contribution of product development partnerships and the example of the European Vaccine Initiative

(O Leroy, European Vaccine Initiative, Heidelberg)

For over 10 years, The European Vaccine Initiative (EVI: until 2009 known as European Malaria Vaccine Initiative) has contributed as a product development partner to the development of 24 malaria candidate vaccine antigens. Of these vaccine antigens 13 vaccine candidates being advanced into phase I clinical trials and three have been transitioned for further clinical development in sub-Saharan Africa. Since its inception the EVI organization has operated as a funding agency, but with a clear service-oriented strategy. The scientific successes and difficulties encountered during these years and how these efforts have fueled EVI-led large scale European consortia in standardization and harmonization in vaccine development are discussed. In the future EVI will remain instrumental in the pharmaceutical and clinical development of vaccines against Diseases of Poverty with a continued emphasis on malaria. While continuing to focus on funding and managing preclinical evaluation up to phase I/II clinical trials, EVI will start supporting antigen discovery. Furthermore, EVI will strengthen the vaccine development in Europe - albeit with a global orientation- through the TRANSVAC research infrastructure and the development of a European Road map for Vaccine Development.

V61 Evaluating and monitoring the implementation of good governance principles in health - four practical tools

(F Stierle, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) mbH, JM Freire, Escuela National De Sanidad, E Koornneef, Abu Dhabi Health Authority)

The Council of Europe is the most relevant organization in Europe to address concerns of governance as a whole including democratic stewardship and accountability towards citizens. In 2010 the Committee of Ministers adopted recommendations on good governance in health systems to help member states to promote value-based governance in health care - based on human rights. Building on that work, the Committee of Experts on implementation of good governance principles in health care developed four practical tools to evaluate and monitor the implementation of good governance principles in health systems. The proposed tools all use the same conceptual framework. It consists of eleven attributes of good governance that reflect the current international discussion: accountability, transparency, institutional/organizational arrangements, participation, equity, quality, effectiveness, efficiency, sustainability, responsiveness and integrity. The tools comprise I) a table to evaluate and monitor attributes of good governance of health systems; II) a checklist to prevent and manage conflicts of interest in health systems; III) a table/checklist for monitoring and evaluating codes of conduct in the health sector; and IV) a prototype of a survey on perceptions of different actors (and levels) on health systems' governance. All tools are 'open-source' and can be used as spread-sheets or web-based tools. They follow all the same simple (internal) logic, and can easily be modified or further developed to fit different contexts, different system levels and different types of actors. They are not 'scientific' indicators and measurements of good governance, but are practical, management-oriented tools that may complement other, already existing instruments (such as WB governance indicators). Therefore, and in order to increase potential users' acceptance, the tools are not prescriptive or normative, but indicative. Possible applications include one-time (rapid) assessments, surveys or evaluations, Delphi-type exercises, and the monitoring of attributes and their perceptions by different system over time.

V62 Efficiency of essential maternal health services in selected primary care facilities in Ghana

(M Dalaba, G Savadogo, R Sauerborn, H Dong, Zhejiang, S Loukanova, Institute of Public Health, University of Heidelberg)

Introduction: The objective of this study was to analyze the structure and distribution of maternal health costs in 12 selected health facilities in northern Ghana and to determine the factors that affect the quality of the services provided. Methods: A quantitative cross sectional design was used to collect provider costs and data on quality of maternal and neonatal care in 12 health facilities in the Kassena Nankana and the Builsa districts of Ghana. A full costing approach was used in calculating costs and overheads were allocated to cost centres using step-down method. The data for the quality assessment were collected in an observation during ANC visits and delivery and results are presented quantitatively. Four hundred and twenty (420) ANC and 160 delivery observations were made. Linear regression analysis was conducted to determine predictors of adherence to ANC and delivery guidelines. Results: The results showed that average cost of running the 12 health facilities was

GH₵725,030 and the median cost was GH₵ 191,912.The cost per patient attending ANC and delivery was GH₵56 and GH₵195 respectively. The average cost per adherence for ANC and delivery were GHc 4.1 and GHc 2.7 respectively. Also results revealed high percentage adherence- ANC (64%) and delivery (74%). Regression results showed that age was positively associated with delivery adherence ($p<0.05$).Also, cost variables such as personnel ($p<0.001$), transport ($p<0.05$) and laboratory cost ($p<0.05$), were significant and positively associated to ANC adherence whiles cost of medical supplies ($p<0.05$) was negatively associated. Conclusion: Substantial amount is being spent on ANC and delivery. Though adherence to ANC and delivery guidelines is quite high, there are still some important activities that health workers do not adhere to. Investments in personnel management, laboratory items, and transport may lead to higher adherence to ANC clinical guidelines and effectiveness of the services.

V63 The economic impact of the insured patients with chronic and acute illnesses in Indonesia: A qualitative inquiry

(B Aji, R Sauerborn, Institute of Public Health, University of Heidelberg)

Introduction This study investigated the experience of insured patients suffered by chronic and acute illnesses to provide evidences for further policy development. This study identified a first level, qualitative understanding of the economic impact of chronic and acute illnesses and household strategy to deal with the high cost treatment. Methods Interviews were conducted with 19 insured households of Askes, Jamsostek and Jamkesmas schemes whose family member had been hospitalized due to chronic or acute illnesses in Banyumas and Margono hospitals. A thematic networks analysis guided the interpretation of the data. Results Insured households whose member had been hospitalized due to chronic and acute illnesses were greatly affected by high cost treatment. Four major themes emerged from this qualitative study relating to financial issues were: insured patients still pay for high out-of-pocket payments, household strategy to cope high cost treatment, household financial hardship, and insured perception toward health insurance scheme. In addition, insured patients especially under Askes and Jamsostek schemes were experienced higher direct medically and non-medically related costs. Otherwise, Jamkesmas patients had no experienced with cost sharing but they had less satisfaction toward hospital services. Conclusion High cost sharing for patients with chronic and acute illnesses needs a specific concern and policy to overcome the financial issues. Inadequate benefits scheme and provider moral hazard that encouraged patient to consume patented drugs rather that generic drugs were the major causal of increasing the cost of treatments among Askes and Jamsostek members. Unequal distribution and the lack of specialty were the prominent problems that caused a long waiting time of treatment for Jamkesmas member with chronic and acute illnesses. This particular situation led to the dissatisfaction of Jamkesmas member, and government should overcome this issue in order to improve the quality of services of the program.

V160 Research partnerships from a global perspective

M Sarker, Dhakar, Bangladesch

V64 Public private partnerships in healthcare vs. public private competition for human resources - a case study from the southern zone of Tanzania

(P Tabatabai, Istitute of Public Health an der Universität Heidelberg, M Marx, evaplan GmbH am Universitätklinikum Heidelberg)

Background: Confronted with a human resources crisis, Tanzania's Public-Private-Partnership (PPP) approach seeks to improve collaboration between the public and private health sector. Private not-for-profit faith-based organizations (FBOs) report losing health professionals to the public sector since public salary increase in 2005/2006. The magnitude and underlying dynamics of this staff-movement are largely unknown and the development of effective counter-strategies remains challenging. Methods: A mixed method design was used to assess all public level-1 (n=7) and FBO (n=4) hospitals in Lindi and Mtwara Regions. Quantitative assessment of staff-movement (01/2006 – 06/2009) and differences in staff perspectives between public (n=42) and FBO (n=20) maternity nurses were assessed using different questionnaire tools. Results: The predominant direction of staff-movement was found to be from the FBO to the public sector. FBO hospitals reported 106 staff-exits, equaling 70% of the entire exit-population and representing 30% of the FBO workforce at the time of the assessment. In contrast, public level-1 hospitals experienced 36 staff-exits, representing only 4.3% of their workforce. A FBO origin was found in 84% of the staff that entered the assessed hospitals, resulting in 27% of the public registered-nurse workforce being former FBO employees. In total, 59% of FBO nurses shifted into public sector facilities within the period assessed. Staff perspectives showed significantly inferior results for FBO maternity nurses when compared to their public colleagues. Main differences were identified in areas linked to career development and training opportunities, management support, employee engagement and workload. No significant salary differentials were detected. Conclusion: The findings indicate considerable staff-movement from the FBO to the public sector. Health worker retention and motivation within FBOs go beyond financial considerations and salary gaps can no longer uniquely explain this movement pattern. The consequences for the catchment area population of FBO hospitals are severe and erode PPP potentials.

V65 The Heidelberg Initiative for Global Health

(A Jahn, Universität Heidelberg)

Responding to need to comprehensively address global health issues through an interdisciplinary approach, a initiative for global health is being launched at Heidelberg University. It comprises life sciences, public health, political sciences, social sciences and environmental sciences with the objective the establish a critical mass in terms of thematic expertise and the ability to conceptual complex global health issues. It is expected to foster partnerships with academia, policy makers, and civil society on national and global level, with particular attention to low and middle income countries.

22 - Echinokokkosen

Chair/s: Peter Kern, Thomas Junghanss
16. März 2012, 10:45 - 12:30 Uhr

Zystische Echinokokkose

10:45 - 11:05	K25	Zentrums-basierte Versorgung von Patienten mit zystischer Echinokokkose T Junghanss, Heidelberg
11:05 - 11:20	V66	Epidemiologisch-klinische Charakteristiken und Management von Patienten mit zystischer Echinokokkose in einem infektiologischen Zentrum in Deutschland J Richter, Düsseldorf
11:20 - 11:30	V161	Komplizierte abdomino-thorakale zystische Echinokokkose - Ein Fallbericht K Hornemann, Heidelberg

Alveoläre Echinokokkose

11:30 - 11:50	V162	Alveoläre Echinokokkosen P Kern, Ulm
11:50 - 12:00	V67	Gallengangsbeteiligung bei der Echinococcus alveolaris Infektion: Endoskopische Therapieoptionen P Sauer, Heidelberg
12:00 - 12:10	V68	In vitro efficacy of triclabendazole vs albendazole and their metabolites against the larval stage of Echinococcus multilocularis J Richter, Düsseldorf

K25 Zentrums-basierte Versorgung von Patienten mit zystischer Echinokokkose

(T Junghanss, M Stojkovic, A Kapaun, Sektion Klinische Tropenmedizin, H Gehrig-Feistel, Abteilung Parasitologie, P Sauer, Medizinische Klinik, Abteilung Gastroenterologie, J Werner, Chirurgie, T Weber, W Hosch, Abt.Diagnostische u. interventionelle Radiologie, Universitätsklinikum Heidelberg)

Die zystische Echinokokkose (CE) ist weltweit eine vernachlässigte Infektionserkrankung (NTD). In den hochindustrialisierten Ländern sind in erster Linie Migranten aus CE -Endemiegebieten betroffen. Die Evidenzbasis für die Diagnose und Therapie beruht weitgehend auf „Expertenkonsens“, da wichtige klinische Studien, insbes zur CE-stadienspezifischen Therapie, bis heute in den betroffenen ökonomisch benachteiligten Endemiegebieten mit hohen Patientenaufkommen nicht durchgeführt werden konnten. Wir haben am Universitätsklinikum Heidelberg seit über 10 Jahren eine CE-Ambulanz an der Sektion Klinische Tropenmedizin in interdisziplinärer Zusammenarbeit mit den Bereichen Diagnostische u. interventionelle Radiologie, Abdominal- und Thoraxchirurgie, Gastroenterologie und Parasitologie etabliert. Wir können CE-Patienten eine differenzierte, CE-stadienspezifische Betreuung bieten, die therapeutisch alle 4 Behandlungsmodalitäten umfasst (medikamentöse Therapie, Chirurgie, perkutane sterilisierende Verfahren und - für inaktive CE-Stadien - ‚watch & wait'). Die Nachsorge, die auf Grund des Rezidivrisikos und für nicht kurativ behandelbare Patienten eine wichtige Rolle spielt, ist gewährleistet. Unser Versorgungsangebot wird überregional genutzt. Wir stellen unser interdisziplinäres Modell der CE-Patientenbetreuung vor.

V66 Epidemiologisch-klinische Charakteristiken und Management von Patienten mit zystischer Echinokokkose in einem infektiologischen Zentrum in Deutschland

(A Orhun, Tropenmedizinische Ambulanz, Klinik für Gastroenterologie, Hepatologie und infektiologie, I Müller-Stöver, MC Holtfreter, H Dedelen, D Häussinger, J Richter, Universitätsklinikum. Heinrich-Heine-Universität Düsseldorf)

Die Zystische Echinokokkose (Cystic Echinococcosis=CE) ist eine weitverbreitete Zoo-nose. Schwierigkeiten der Betreuung von CE-Patienten in Deutschland wurden unter-sucht, um deren klinisches Management zu optimieren. 65 CE-Patienten, 56 (85,15%) Immigranten und neun (13,85%) Deutsche, die sich in unserer Ambulanz zwischen 1999 und 2011 vorstellten, wurden zu ihrer Anamnese befragt. Vorbefunde wurden berücksichtigt. Diagnose, Staging und Therapie erfolgten anhand Labor- und bildgebenden Befunden. In 55 von 59 (93,22%) auswertbaren Fällen hatten die Patienten mehrere Jahre in ei-nem ländlichen Umfeld gelebt. 34/35 (97,14%) Patienten erinnerten sich an Hundekontakte. Die Symptomatik hatte nur in 21/59 (35,59%) Fällen auf die CE hingewiesen, meist wurde die CE zufällig entdeckt. Die Diagnosestellung wurde durch falsch negative serologische Ergebnisse (IHA falsch negativ bei elf von 60, [18,33%], EIA: bei acht von 53 Fällen [15,09%]), den seltenen Nachweis einer Eosinophilie (15/61 [24,59%]) und einer IgE-Erhöhung (27/57 [47,37%]) erschwert. Minimal invasive perkutane oder chirurgische Verfahren wurden bei aktiver CE der Le-ber durchgeführt. Konservativ wurden Patienten mit disseminierter CE therapiert. Bei inaktiver CE erfolgte keine Intervention. Rezidive traten bei sieben von 51 (13,72%) weiterbetreuten Patienten auf: eines nach OP und sechs nach konservativer Therapie. Die CE wird häufig spät erkannt, da richtungsweisende Symptome selten auftreten und Laborbefunde nicht zuverlässig sind. Für Diagnose, Staging und Follow-up sind die Zysten-Morphologie und -Lokalisation bedeutsam. Die CE erfordert ein interdisziplinäres Management, das in spezialisierten infektiologischen Zentren koordiniert werden sollte.

V161 Komplizierte abdomino-thorakale zystische Echinokokkose - Ein Fallbericht

(K Hornemann1, CP Heußel2, P Schnabel3, C Gutt4, M Stojkovic5, W Hosch6, H Dienemann7, T Junghanss8
1Thoraxklinik, 2Thoraxklinik, 3UniKlinikum HD, Allgemeine Pathologie, 4UniKlinikum Heidelberg, 5Universitätsklinikum Heidelberg 6UniKlinik HD, Abt.Diagnostische u. interventionelle Radiologie, 7Thoraxklinik, 8UniKlinik HD)

Einführung:
Bei der zystischen Echinokokkose (CE) handelt es sich um eine parasitäre Infektion des Menschen. Diese treten v. a. in Ländern mit Schaf- und Rinderzucht auf. In Deutschland ist die Erkrankung fast ausschließlich bei Immigranten zu finden. Klinisch manifestiert sich die thorakale / pulmonale CE in Reizhusten, Hämoptysen, Dyspnoe, pleuralen Schmerzen, Pleuraerguss, Abgeschlagenheit und bei sekundär bakterieller Infektion der Zysten mit Fieber. Kleine CE Zysten sind meist asymptomatisch.

Fallbericht:
27 jähriger, türkischer Patient mit einer Raumforderung im linken Unterlappen und seit zwei Monaten bestehendem Reizhusten und Schmerzen in der linken Schulter. 2003 Erstdiagnose einer CE. Bislang keine Therapie. Serologie unauffällig. Keine IgE-Erhöhung.
Bei dem Patienten lag ein primär hepatischer Befall vor, der sich transdiaphragmal mediastinal in die linke Pleurahöhle ausgebreitet und schließlich zur Ausbildung einer zysto-bronchialen Fistel geführte hatte.
Operation: en-bloc Zystenexstirpation mittels Zwei-Höhleneingriff – atypische Leberresektion, Unterlappenektomie links, partielle Zwerchfellresektion, allogener Zwerchfellersatz

Diskussion:
Reizhusten, Hämoptysen und Leistungsabfall können mannigfache Ursachen haben. In seltenen Fällen handelt es sich um eine parasitäre Infektion.

Der vorliegende Fall zeigt das Ausmaß, das CE innerhalb von Jahren untherapiert durch verdrängendes Wachstum und durch Druckatrophie der betroffenen Organabschnitte erreichen kann. Es weist auf die Bedeutung der frühen Diagnose und konsequenten Therapie hin. Insbesondere in fortgeschrittenen Fällen ist eine interdisziplinäre Zusammenarbeit an einem Zentrum erforderlich, um derart komplexe Endstadien der Erkrankung unter Kontrolle zu bekommen und Rezidive zu verhindern. Nachbeobachtung über 5-10 Jahre mittels Bildgebung ist erforderlich.

V162 Alveoläre Echinokokkosen

P Kern, University of Ulm

Die alveoläre Echinokokkose wird durch das Larvenstadium des Kleinen Fuchs-bandwurms (Echinococcus multilocularis) verursacht. Die exakte Inkubationszeit ist nicht bekannt. Man rechnet mit mindestens 10 Jahren, bis nach der Infektion eine Läsion in der Leber nachweisbar ist. Das langsame Wachstum des Parasiten verur-sacht selten Symptome, die dem Patienten eine dringliche Abklärung der Beschwer-den notwendig erscheinen lassen. Daher wird bei der Mehrzahl der Patienten die alveoläre Echinokokkose zufällig im Rahmen anderer diagnostischer Abklärungen diagnostiziert. In Kenntnis des dann erkannten auffälligen Leberbefundes berichten die Patienten über unspezifische Oberbauchbeschwerden. Die sich entwickelnden Läsionen können zentral zerfallen. Es entsteht der Eindruck einer Pseudozyste. Bei fortgeschrittenem Stadium treten zudem Symptome einer konsumierenden Erkran-kung mit Ikterus auf. Im Gegensatz zur zystischen Echinokokkose wächst die Larve bei Infizierten in der Art eines infiltrierenden Tumorgewebes. Ein weiteres Kennzei-chen der Erkrankung ist die Infiltration über die Lebergrenzen hinaus in die benach-barten Organe, in die Lymphknoten und über die Blutbahn in weiter entfernte Orga-ne. Zur besseren Charakterisierung dieses Zustandes bei Diagnosestellung hat sich die WHO-Klassifikation PNM durchgesetzt, die die Läsionen und ihre Verteilung in der Leber (P), die Beteiligung benachbarter Organe und der Lymphknoten (N) und entfernte Organe (M) beschreibt. Ultraschall, Computertomographie und Magnet-resonanztomographie zeigen die unscharf begrenzten Läsionen, die durch Kalkspritzer und durch die ausgeprägte Inhomogenität charakterisiert sind. Für den Antikörpernachweis stehen Verfahren unter Verwendung von Rohantigenen und rekombinanten Antigenen zur Verfügung. Makroskopisch findet sich im Schnitt ein auffälliges tumorartiges Gewebe. Im Schnellschnitt werden dann in der PAS-Färbung die lamellären Membranen dargestellt und die Diagnose einer Echinokokkose gesi-chert. Die Differenzierung von zystischer und alveolärer Echinokokkose macht im klinischen Alltag häufig erhebliche Probleme.

V67 Gallengangsbeteiligung bei der Echinococcus alveolaris Infektion: Endoskopische Therapieoptionen

(P Sauer, F Chahoud, Medizinische Klinik, Abteilung Gastroenterologie, UniKlinik HD)

Ein Ikterus mit obstruktiver Cholestase oder Symptome einer Cholangitis können auf eine direkte Gallengangsbeteiligung bei der E. alveolaris Infektion hinweisen. Ultraschall und die nicht invasive Schnittbildgebung sind häufig wegweisend. Falls nicht nur kleiner Gallengänge in der Peripherie der Leber, sondern Gallengänge bis in die Größenordnung der Segmentabgänge betroffen sind kann sich eine funktionell relevante Stenose ausbilden, die wiederum eine chronische Cholangitis unterhält und zur Progression der Leberfunktionsstörung beiträgt. Das Ziel einer endoskopischen Therapie ist die Wiederherstellung des biliären Abflusses durch die Beseitigung einer oder mehrerer relevanter Stenosen. Hierzu stehen verschiedene technische Optionen mit unterschiedlichem Risikoprofil zur Verfügung. Wir berichten über unsere Zentrumserfahrungen der endoskopischen Therapie dieser spezifischen biliären Probleme.

V68 In vitro efficacy of triclabendazole vs albendazole and their metabolites against the larval stage of Echinococcus multilocularis

(D Richter, Institute for Pharmacy Ernst-Moritz-Arndt-Universität Greifswald. Department of Internal Medicine III, Section Infectiology and Clinical Immunology, University Hospitals Ulm, J Richter, Universitätsklinikum. Heinrich-Heine-Universität Düsseldorf, B Grüner, Department of Internal Medicine III, Section Infectiology and Clinical Immunology, University Hospitals Ulm, J Franz, Department of Internal Medicine III, Section Infectiology and Clinical Immunology, University Hospitals Ulm, C Ritter, Institute for Pharmacy Ernst-Moritz-Arndt-Universität Greifswald, P Kern, University of Ulm)

Alveolar echinococcosis (AE) caused by the cestode Echinococcus multilocularis (small fox tapeworm) is endemic in wide areas of the Northern hemisphere with an estimated 0.3 to 0.5 million new human cases per year. Untreated AE inevitably progresses and leads to death in more than 90% of cases. AE was not curable until the advent of benzimidazoles. However, in AE benzimidazoles, namely albendazole (ABZ) in vivo have only a helminthostatic but not a helminthocidal effect. ABZ must sometimes be withdrawn because of toxic hepatitis and bone marrow suppression. Alternative drugs are urgently needed. The benzimidazole derivative triclabendazole (TCZ) is more effective than ABZ to cure infections by the liver flukes Fasciola hepatica and Fasciola gigantica. Therefore, the efficacy of TCZ was investigated on an in vitro culture of E. multilocularis larval tissue. E. multilocularis vesicles were evaluated for their morphology before and after adding TCZ, TCZ sulfoxide (SO), TCZ sulfone and ABZ to the larval tissue culture. TCZ at the concentrations of 20µg/ml culture solution led to maximum vesicle damage within twelve days and of 25µg/ml within thirteen days, and with TCZSO at the concentrations of 20µg/ml within twenty and of 25µg/ml within fourteen days. Lower concentrations were less active. For comparison maximum vesicle damage was achieved by ABZ within fourteen days and by ABZSO within thirty days. TCZ compounds are possibly helminthocidal since intraperitoneal re-injection of treated larval tissue into gerbils was not followed by growth of new vesicles. TCZ and TCZSO are promising candidate drugs for the treatment of AE.

23 - Junge DTG/foring Symposium

16. März 2012, 13:30 - 15:30 Uhr

	Arbeiten in einer globalisierten Welt - Perspektiven und Karrieremöglichkeiten in der Internationalen Gesundheitsarbeit Moderation: Reinhard Klinkott
13:30 - 13:42	Wie kann ich mich auf die Internationale Gesundheitsarbeit vorbereiten? B Binding, Würzburg
13:42 - 13:54	An der Schnittstelle zwischen Forschung, öffentlicher Gesundheit und klinischer Praxis in internationalem Umfeld arbeiten - geht das alles zusammen? NG Schwarz, Hamburg
13:54 - 14:06	From bed- to desk-side: als Arzt in die Ministeriaverwaltung N Schneider, Bonn
14:06 - 14:18	In einer NGO weltweit medizinisch tätig sein A Schultz, München
14:18 - 14:30	Engagement weltweit - Karriereknick in Deutschland? R Klinkott, München
14:30 - 15:30	Diskussion

24 – Fachgesellschaften Tropenmedizin & Internationale Gesundheit: Neue Herausforderungen und Chancen

Chair und Moderation: Thomas Löscher
16. März 2012, 16:00 - 18:00 Uhr

16:00 - 16:10	V70	Clinical Medicine & Global Health: challenges and perspectives T Löscher, München
16:10 - 16:22	V163	Global Child Health A Schultz, München
16:22 - 16:34	V71	Health Care in Transition - a changing need in Obstetrics and Gynecology E Kantelhardt, Halle
16:34 - 16:46	V72	The increasing global burden of surgical diseases - how to deal with H Mothes, Jena
16:46 - 16:58	V73	HIV/ Leishmania Koinfektionen in Kamerun Esther von Stebut
16:58 - 17:10	V74	Vision 2020: Challenges and Human Resource Development A. Nentwich
17:10 - 17:22	V75	Are Psychiatric Services Important for Developing Countries? Wolfgang Krahl
17:25 - 18.00		Round Table Discussion: Integration into pre- and postgraduate education, international cooperation, clinical research, new initiatives

V70 Clinical Medicine & Global Health: challenges and perspectives

(T Löscher, 1. Vorsitzender der DTG, München)

Since several decades, Tropical Medicine as an outdated term of colonial times has been replaced by Global or International Health with a focus on resource-poor countries where health problems are barely determined by climate but by the lack of adequate human and economic resources, weak health systems and inequalities in health across countries, regions, communities, and populations. Major development needs and goals have been formulated in the eight Millennium Development Goals (MDG). Most of them are directly or indirectly related to health. Although the MDG represent the global development their focus is on low- and middle-income countries. On the other hand, the differentiation between health problems of the developing and the developed world has become more and more useless. In times of globalization, climate change, and emerging diseases the health problems of all countries are of global importance and concern. Despite recent success in the combat of poverty-related diseases (PRD) the major part of the high rates of morbidity and premature mortality in resource-poor countries is avoidable and still caused by classical PRD such as respiratory infections, diarrheal diseases, major infectious diseases (eg HIV/AIDS, Tb, malaria), malnutrition, perinatal and maternal conditions. Today, a new challenge for low and middle-income countries is the increasing double burden of disease caused by the dual burden of PRD and emerging 'modern' non-communicable diseases such as cardiovascular diseases, cancer, diabetes, and obesity. This is imposing a new burden to those countries with limited resources which are still struggling to meet the challenges of PRD. From the perspective of clinical medicine, the development of health care systems even in resource-poor countries has to build up and to link almost all clinical disciplines and all levels of the health care system. Only then, the population will benefit from the bigger part of the available medical progress. Adequate primary and community health care with a comprehensive coverage including rural and remote areas is the basis of any health care system. However, many health problems require more specialized personnel and facilities. Both are notoriously deficient or absent in resource-poor countries. Consequently there are large areas of neglect such as chronic diseases (eg cardiovascular, metabolic), cancer, traumatology, psychiatry, sensory disorders (eg eye diseases, hearing impairment), or occupational & environmental diseases. Education and training of health care personnel is essential for sustainable development. Advanced training of clinicians, researchers, and stakeholders is an important part of the co-operation of clinical and academic institutions between high- and low-income countries. However, brain drain due to dissatisfactory working conditions is an important problem and requires effective strategies such as adequate remuneration, appropriate infrastructure, and continuing education. In addition, it is critical to strengthen research capacities for PRD both in basic and clinical research.

Pharmaceutical industry and large research institutions in the North have only very limited interests in PRD research. In recent years, several new initiatives have been established to initiate and finance research co-operations for the development of new diagnostic and therapeutic tools for PRD. Some of these product development partnerships have already succeeded in developing new treatments for tropical neglected diseases or new vaccines being affordable for resource-poor countries.

V163 Global Child Health

A Schultz, München

V71 Health care in transition - a changing need in Obstetrics and Gynecology

(E Kantelhardt, Klinik und Poliklinik für Gynäkologie, Martin Luther-Universität Halle)

Maternal health, child mortality, infectious diseases, gender – topics of international interest are part of the Gynecologic profession. Gynecology and nonetheless international Gynecology needs public discussion – in Germany and in the world. Optimum care of women, of mothers may not be separated from the wellbeing of whole family. Questions of women's health dealing with pregnancy, contraception and prevention are part of culturally sensitive domains such as the family, reproduction and issues of sexuality. Questions of emancipation, participation and health-care of women arise more and more in the context of migration, education, the aging population, a change towards private health care and all aspects of a predominantly urban living. Our work must include substantial scientific activities, evidence based references and precise evaluation of interventions in a globalised world.

V72 The increasing global burden of surgical diseases – how to deal with

(H Mothes, Universitätsklinikum Jena)

Due to the process of epidemiological transition the global burden of surgical diseases has become as high as never before and accounts for more than 10% of the health burden worldwide. It remains difficult to reduce this increasing number of morbidity, disability and death without improving infrastructure or providing appropriate education programmes and physical facilities, equipment and supplies in developing countries. This has to be implemented through national health policy strategies and can only be supported by international campaigns as the Global Initiative for Emergency and Essential Surgical Care (GIEESC) of the WHO. However, many helpful and lasting initiatives have succeeded to improve surgical services in several local settings. They become more successful if they are based on a one to one partnership between individuals or specific institutions, if they follow and cooperate with the local health care authorities and if they concentrate on both, supply of materials as well as education of health care workers.

V73 HIV/Leishmania co-infections in Northern Cameroon

(E von Stebut, Uni Mainz)

Approx. 350 million people are at risk of acquiring leishmaniasis worldwide. The spread of HIV expanded the endemicity of leishmaniasis significantly, since it is an opportunistic infection in HIV-infected individuals. We have conducted a door-to-door survey on CL and CL/HIV co-infection in Northern Cameroon. Such studies are of great importance as both diseases occur in the region and successful control programs against HIV should integrate opportunistic infections such as leishmaniasis. Of 32,466 persons screened, 146 presented active CL lesions (0.5%) induced by L. major and an additional 261 (0.8%) had scars indicative of previous CL infection (past cases). Clinically, the disease ranged from localized to disseminated CL with the number of lesions varying from 1 to 19 per individual. HIV serological testing identified seven (4.8%) HIV+ patients (7 HIV-1, 2 HIV-2). Several clinical parameters such as the numbers of CL lesions and lesion sizes were larger and the time to lesion resolution was longer in HIV co-infected individuals as compared to HIV negative controls. Next, we characterized the underlying cellular and humoral immune mechanisms for susceptibility to Leishmania and HIV. In serum, we detected elevated levels of Leishmania-specific IgG in all samples; however, significantly lower levels were found in HIV co-infected subjects. Isotype-specific differences were not obvious. In addition, multiplex analysis of Th1/Th2 cytokines revealed significantly decreased levels of IL-6 and IL-8 in samples of HIV co-infected patients, but higher amounts of the Th2-associated cytokines IL-4 and IL-5. Analyses of skin biopsies obtained at different time points showed fewer epidermal LC, CD1a+ dermal DC, CD68+ macrophages, as well as fewer CD4+ T cells and CD20+ B cells in HIV co-infected individuals. In summary, we demonstrated Leishmania/HIV co-infections in Cameroon in ~ 1/20 CL patients. Also, our results confirm prior studies demonstrating worsened disease outcome in Leishmania/HIV co-infected as compared to HIV negative patients indicating that an increased susceptibility to progressive disease after infection with this otherwise dermatotropic strain (L. major) is observed in the HIV+ patients. Finally, our immunological studies suggest severe alterations in the protective immune response initiated by antigen presenting cells and mediated by IFN□-producing T cells. A detailed understanding of the immunological responses in Leishmania/HIV co-infected individuals may aid the development of optimized therapeutic regimens for this severely affected group.

V74 Vision2020: challenges & human resource development

(M Nentwich, Augenklinik der LMU, München)

Die Vermeidung von Blindheit hat seit der Gründung der International Agency for the Prevention of Blindness (IAPB) im Jahr 1974 und dem Blindness-Prevention-Programm der WHO zunehmend an Bedeutung gewonnen. Im Jahr 1999 wurden diese Anstrengungen der WHO, IAPB und verschiedener Nichtregierungsorganisationen (NGO´s) in der weltweiten Kampagne „Vision 2020, The Right To Sight" gebündelt, mit dem Ziel, vermeidbare Blindheit – etwa drei Viertel aller Erblindungen weltweit sind vermeidbar - bis zum Jahr 2020 zu beseitigen. Schwerpunkte von Vision2020 sind die Kontrolle und Therapie häufiger Erblindungsursachen, der Aufbau einer augenärztlichen Infrastruktur und die Aus- und Weiterbildung von Fachpersonal. Anfänglich beschäftigte sich die Initiative schwerpunktmäßig mit folgenden Erkrankungen: Katarakt, Trachom, Onchozerkose, Kinderblindheit und Refraktionsfehler. Aktuell sind das Glaukom und die diabetische Retinopathie als weitere Schwerpunkte hinzugekommen. Diese Anstrengungen haben erstmals zu einem Rückgang der weltweiten Blindheit geführt und das, obwohl bei steigender Weltbevölkerung und Lebenserwartung ohne diese Initiative mit einem deutlichen Anstieg der Zahl der blinden Menschen gerechnet wurde. Neben der direkten Kontrolle von Erblindungsursachen hat die Aus- und Weiterbildung von Fachpersonal einen sehr hohen Stellenwert, wobei „Brain-Drain" aufgrund unbefriedigender Arbeitsbedingungen in Entwicklungsländern ein großes Problem darstellt. Mittlerweile haben mehr als

160 Augenärzte das Ausbildungsprogramm an der Augenklinik der University of Nairobi durchlaufen, das Ende der 1970er Jahre von Herrn Professor Dr. Volker Klauss initiiert worden ist. Diese 160 Absolventen stellen aktuell etwa 20% aller Augenärzte in Sub-Sahara Afrika. Um die Arbeitsbedingungen für afrikanische Augenärzte zu verbessern, ihnen ein Forum zur kontinuierlichen fachlichen Weiterbildung und gegenseitigem Austausch zu bieten und somit auch „Brain Drain“ zu vermeiden, initiierten die Augenkliniken der Ludwig-Maximilians Universität in München und der University of Nairobi in Kenia aufbauend auf der mehr als 30-jährigen Kooperation der beiden Kliniken im Jahr 2006 mit Unterstützung von NGO´s das „Afro-German-Eye-Net“ Programm (AGENT). Da die meisten Alumni des Weiterbildungsprogramms in Nairobi in ländlichen Regionen tätig sind, ist das AGENT-Programm ein wichtiger Beitrag, diese Kollegen an den neuen Entwicklungen in der Augenheilkunde teilhaben zu lassen und ihnen die Pflege eines Alumni-Netzwerks zu ermöglichen. Erfreulicherweise ist „Brain Drain“ hier kein Problem und beinahe alle Alumni arbeiten in Afrika als Augenärzte.

V75 Are Psychiatric Services Important For Developing Countries?

(W Krahl, Ludwig-Maximilians-University Munich Department of Psychiatry and Psychotherapy)

More than half a billion of the world’s population is suffering from psychiatric disorders, alcohol- or drug-addiction. The vast majority live in developing countries and do not receive appropriate treatment. Many of them are stigmatized, suffer from prejudice and are marginalized. Inadequately treated mental disorders lead to serious psychological, physical, social and subsequently to economic problems. These facts demonstrate that psychiatric services are necessary in low and middle income countries. In 2001 the World Health Organization (WHO) recommended that countries develop community-based services for people with mental disorders. Recent WHO data however show that mental health services, especially in developing countries, are still highly insufficient and dominated by hospitals. Resources for mental health are scarce, unevenly distributed, and inefficiently utilized. Recently the author visited Somaliland, a country with 3.5 Million people and no psychiatrist at all. Together with a colleague from Ethiopia he conducted a workshop on “Basic mental Health”. The results of the group work “How to improve mental health services in Somaliland” show that the participants, general practioners, nurses and social workers, had ideas which could - if implemented - considerably improve the mental health services in Somaliland.

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