centuries. Recently, scientific and epidemiologic research has focused on its content in flavonoids and its potential to promote health and/or reduce risk factors for various diseases. Chocolate is also an energy-rich food item. As such, it may promote positive energy balance, body weight gain, and ultimately become a risk for public health. Chemical compounds found in cocoa are fragile. During the multiple processes of chocolate production, these compounds may be degraded. In addition, adjunctions to cocoa to generate specific chocolate brands may have positive or negative biological of the final product. The art of the chocolate maker is to protect the cocoa values during the chocolate production and to select additives having interesting organoleptic values and positive health properties.

Conclusion: Many associations between chocolate consumption, health, and diseases are proven. The complexity of the cocoa compounds warrants further investigations to substantiate the benefits/disadvantages of chocolate, and to identify if chocolate should remain a food for pleasure and/or dietary supplement.

Learning objectives: Identify the chocolate's properties. Learn the main hypotheses addressing the chocolate's health-promoting values. Discover the relationship between chocolate, health, and diseases. Understand the differences between industrial and artisanal processes, and their impact on the final product.

Disclosure of Interest: None declared.

MEDICATION USE: FROM LEAFLET TO ELEARNING

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Summary: Medication adherence is poor, especially for chronic diseases, leading to reduced treatment effectiveness and increased health care costs. As defined by WHO, "adherence is a multidimensional phenomenon determined by the interplay of five dimensions of which patient-related factors are just one determinant." One of the different ways to improve adherence is to enhance patients' knowledge about medication that implies taking into account patients' experiences, expectations, and beliefs about medication efficacy and adverse effect in the context of their illness. Patient information leaflets (PIL), legally required by many countries, provide comprehensive information, but they are not necessarily related to patients' level of literacy nor do they answer individual situations. The Internet is more and more used as a source for health information. Patients report that this media allows them to get second opinions, cross-checking, and more tailored information through experience sharing. However, they could also be deceived, confused, or frightened by what they are finding on some Web sites or forums. ELearning programs based on constructivist learning theories are aiming, through self-involvement and interactivity, at improving patients' knowledge and skills to use medicine in a safer way.

Disclosure of Interest: None declared.

THE MAKINGS OF THE WORLD-CLASS ATHLETE: PHYSIOLOGIC, GENETIC, PSYCHOSOCIAL AND ECONOMIC DETERMINANTS

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Summary: A look at the final medal tally at the XXX Olympiad in London reveals that certain nations enjoy particular success on the running track and the marathon. Compelling examples are that of east African athletes from Kenya and Ethiopia, with their domination of middle- and long-distance running, and that of athletes from Jamaica and the United States, with their domination of sprint events. The London results have undoubtedly enhanced the concept that certain ethnic groups possess some inherent genetic advantage predisposing them to superior athletic performance. However, there is no genetic evidence to suggest that this is the case, although research is ongoing and predominantly implicates environmental factors. Genetic studies of elite distance runners from Kenya and Ethiopia and elite sprinters from Jamaica, the United States, and Nigeria do not find that these athletes possess a unique genetic makeup; rather they serve to highlight the high degree of genetic diversity among ethnic groups. It is unjustified, therefore, to regard ethnic differences in sporting success as genetically mediated; to justify doing so one must identify the genes that are important, which until now has proven elusive.

Disclosure of Interest: None declared.

DEVELOPMENT OF PARTNERSHIPS BETWEEN THE BIOPHARMACEUTICAL INDUSTRY AND THE WORLD ANTI-DOPING AGENCY

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Summary: Recent cases of doping in elite sports have shown that drugs in development have been misappropriated during clinical trials and supplied to athletes or members of their entourage with a view to being used for performance-enhancing purposes. Certain innovative drugs, in particular those with chemical structures similar to endogenous substances, are especially difficult to detect. It requires substantial time and investment by antidoping authorities to develop detection methods that can then be integrated into the routine antidoping analysis of WADA-accredited laboratories. In a bid to facilitate detection methods for drugs in development that have doping potential, WADA has created partnerships and engaged in collaboration with pharmaceutical and biotechnology companies, as well as with the related biopharmaceutical associations. The rationale is to bring about an exchange of information before these drugs have completed their clinical development and become commercially available. This exchange of information has already proven to be of great value to the antidoping authorities, while it has also allowed the pharmaceutical and biotechnology companies to benefit from WADA's experience in the risk-management of their substances in development and the possibility of counterfeiting by illegal laboratories and unscrupulous companies. This approach continues to expand as more companies embrace the collaborative model. The ultimate aim always will be to deter and prevent athletes from abusing these drugs, because such abuse poses a very real risk to their health and continues to be a major threat to clean athletes and clean sport.

Disclosure of Interest: None declared.

THE ROLE OF THE CLINICAL PHARMACOLOGIST IN PHARMACOECONOMICS/HEALTH ECONOMICS

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Summary: Clinical pharmacologists should be playing a much larger role in the economic evaluation of medicines than hitherto. They have particular expertise in: choice of comparator interventions; appraisal of study designs of clinical effectiveness; appropriateness of post hoc subgroups; generalizability (external validity) of the pivotal studies; and inputs into, and face validity of, economic models.

Disclosure of Interest: None declared.

TARGETS FOR DRUG DEVELOPMENT IN HIV NEUROPATHY

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Summary: There are globally ~34 million people infected with HIV. About 40% of those people living with HIV, whose infection is suppressed by antiretroviral therapy (ART) and are often otherwise well, have a length-dependent distal symmetrical sensory polyneuropathy, which in most cases is associated with neuropathic pain. This makes sensory neuropathy 1 of the most prevalent clinical manifestations of HIV in the current era of combined ART and therefore an increasingly major area of therapeutic need. Sensory neuropathy is usually attributable to either viral–neuronal interactions and/or ART neurotoxicity.

Data will be reviewed for:

- the epidemiologic and risk factors of HIV-associated neuropathy
- efficacy of current therapies: a meta-analysis of current randomized controlled trials for neuropathic pain in HIV
- sensory profiles and other clinical characteristics in HIV-positive patients with and without sensory neuropathy
- laboratory animal modeling of HIV GP120-induced neuropathy, including ethologically relevant complex pain behaviors and pharmacologic analysis
- laboratory animal modeling of ART neurotoxicity, including ethologically relevant complex pain behaviors and pharmacologic analysis
- use of gene microarray studies of animals models to reveal novel drug targets

Disclosure of Interest: A. Rice: shareholder of Spinifex; grant/research support from Pfizer and Astellas; consultant for Imperial College; consultants for in last 12 months Spinifex and Astellas; and other: PI in IMI-EUROPAIN.

UPDATE ON THE STATUS OF ARTEMISININ RESISTANCE

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Summary: Drug Resistance and Containment Unit, Global Malaria Programme, World Health Organization, Geneva, Switzerland.

Global malaria control has been threatened by resistance to antimalarial medicines. *P falciparum* resistance to chloroquine and pyrimethamine both originated in Southeast Asia and subsequently spread to Africa with substantial implications for global public health. Similarly, in the 1980s, resistance to mefloquine emerged rapidly on the western border of Cambodia and on the northwest border of Thailand only a few years after its introduction. In April 2001, WHO recommended the use of artemisinin-based combination therapies (ACTs), combining an artemisinin derivative, known for its rapid action and short elimination from the body, with another drug characterized by a different mechanism of action and slow elimination.

Emerging *P falciparum* resistance to artemisinin derivatives is a major global public health concern. WHO first issued a warning about the threat of artemisinin resistance in the Greater Mekong subregion in 2005, after routine efficacy studies showed delayed clearance after ACTs. The first cases of confirmed artemisinin resistance were found in western Cambodia, along the Cambodia–Thailand border in late 2006. The 4 countries most affected by the emergence of artemisinin resistance are Cambodia, Myanmar, Thailand, and Vietnam. Despite observed changes in parasite sensitivity to artemisinins, ACTs continue to cure patients, provided the partner drug is efficacious. However, once resistance to artemisinin emerges, it is more likely that resistance to the partner drug will also develop and vice versa. Currently and in absence of a molecular marker, the best available indicator of suspected artemisinin resistance is the proportion of patients who are still parasitemic at day 3 (72 hours) after a full course of an ACT.

In 2010, WHO developed the Global Plan for Artemisinin Resistance Containment (GPARC). The plan was drafted after a consultation with all constituencies of the Roll Back Malaria Partnership, as well as a range of donor organizations and industry partners. WHO is also currently implementing an emergency response plan to scale-up efforts to contain artemisinin resistance in the Greater Mekong subregion. The presentation will provide an update of the current status of artemsinin resistance and containment activities.

Disclosure of Interest: None declared.

UNDERGRADUATE TRAINING FOR MEDICAL STUDENTS IN CPT AND PRESCRIBING

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Summary: Prescribing is a complex task and is often undertaken by the most inexperienced doctors. From day 1, new doctors need to be able to prescribe safely and rationally. It is clear that this requires more than traditional textbook knowledge of pharmacology. Preparing new graduates to be effective prescribers is 1 of the major concerns of modern undergraduate medical education. Evidence suggests that this training could be improved, although there is debate about the most effective methods for doing so.

This presentation will review the perceived deficiencies of current teaching, the challenges of delivering effective prescribing education, and the available evidence on a range of teaching and learning methods. In particular, the UK British Pharmacological Society 2012 recommendations for undergraduate education in clinical pharmacology and therapeutics will be used as an example of how medical educators might approach this difficult area.

Disclosure of Interest: None declared.

COMPLEXITY OF PREDICTING THE MAGNITUDE OF DRUG-DRUG INTERACTIONS IN AN INDIVIDUAL PATIENT: THIS CANNOT FIT TO A POCKET GUIDE; IPAD MAY BE!

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Summary: The increased prominence of in vitro–in vivo extrapolation (IVIVE) capabilities has helped with recognizing the potential of drug–drug interactions (DDI) at early stages of drug discovery. Latest regulatory guidelines by the EMA and FDA provide recommendations for conduct of IVIVE through modeling. They are designed to protect the public from adverse effects associated with likely DDI by appropriate labeling or preventing the marketing of drugs with unmanageable DDI. However, DDI in an individual patient are determined by a myriad of variables. Prescribers may use labels in the clinical practice; nonetheless, currently, labels do not provide information for all the different permutation of conditions that put certain subgroup of patients at higher risk (eg, comorbid diseases, genetics, age and intake of several drugs). Some recent attempts by both the FDA and EMA have moved the focus from an average individual to a perceived susceptible patient (eg, chronic renal failure).

Creation of user-friendly interface computer programs of DDI prediction, which takes the sources of variability into account, may assist with the prediction and management of DDI in an individual patient. The required information on drugs (ie, affinity to various enzymes, nonenzymatic routes, permeability, protein binding, inhibi-