AAiPS

Newsletter

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AMERICAN ASSOCIATION
OF INDIAN PHARMACEUTICAL SCIENTISTS
P.O. Box 7244
Colonia, NJ 07067

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INSIDE THIS ISSUE

Newsletter Editor: *Uday Doshi*
Assisted by *Pankaj Paranjpe, Rashmi Pai-Thakur, Mike Yelvigi*

PRESIDENT'S MESSAGE

Dear Members,

AAiPS and the Future….

Greetings.

On behalf of the Executive Committee, I welcome you to another year of partnership in quest of excellence in Pharmaceutical Sciences. The task of leading AAiPS into the landscape of the 21st century rest not just with the Executive Committee, but on the entire membership. I am convinced that it is you who will sustain the growth and direction of AAiPS through innovation, input and practical realistic possibilities.

I hope you enjoyed the activities of our association this year and with your help, we hope to increase the quality of our programs in 2009. We must work together as a spirited crew to navigate successfully to the shores we have yet to discover.

We are proud to announce that we will continue to offer the award initiated in 2007 to a pharmaceutical faculty member from a recognized Indian Pharmacy education and research center. This award offers a grant of about US $4000 covers participation at the Annual Meeting of American Association of Pharmaceutical Scientists (AAPS), held in November of each year in North America. Arvind K Bansal, Ph.D, Professor and Head Dept. of Pharmaceutics, National Institute of Pharmaceutical Education & Research (NIPER), Punjab.

Our Annual meeting is all set for November 19th at Omni Hotel, Atlanta, GA. This year's meeting will feature distinguished guest, Dr. Prakash Modi, CEO Unichem Laboratories, India. Please plan to register in advance and make this event a great success. To those who are bringing their families to Atlanta, I highly encourage you to bring your spouse to the dinner meeting.

I encourage all members to take an active role in this organization by attending our networking regional and annual meeting events, recruiting new members, organizing local chapters and providing ideas on how to improve the organization. Your comments and suggestions on all matters pertaining to our organization are welcome. If you have any suggestions, please write to us.

Sincerely

Vijai Kumar

REGIONAL MEETING UPDATES

***NEW JERSEY*- JUNE 26, 2008**
By: Dr. Punit Marathe

Om Basavapathruni, an IT Guru from Pfizer spoke at 2nd regional meeting of the year for the New Jersey Chapter. Mr. Basavapathruni is the head of Acquisitions, Collaborations and Divestitures across Pfizer in Worldwide Information Technology. Before joining Pfizer, Om was the Global Head of R & D IT Applications at Legacy Pharmacia Corporation. His topic was the role of IT in facilitating Third Party collaborations in Pharmaceutical Organizations. In his talk, Om reviewed the drivers for collaboration, collaboration landscape in Pharma R&D, types of collaborations, how IT helps with these collaborations and challenges associated with these.

Pharmaceutical industry today continuously seeks opportunities for third party collaborations to improve research productivity, expedite drug development, enhance pipeline value and to lower costs. Collaborations entail biotechnology companies, other Pharma companies, universities and academic institutions. The IT departments play a major role in facilitating these third party collaborations by establishing secure e-mail communications, transfer and track intellectual property, convert paper documents to searchable PDF documents, support electronic submissions through standard templates, facilitate validation of regulatory systems, provide literature searching capability, assist with preparation and conduct of regulatory meetings and assist with asset preparation, due diligence and out-licensing. When collaboration is terminated, returning all the intellectual property to the third party is equally challenging. Om pointed out that to be effective in coordinating the numerous tasks performed by the IT department, it is important to provide a single point of contact to internal and external collaborators and empower that person to make decisions. The challenges faced by the IT department are many. Many small size companies, especially the ones overseas, lack sufficient IT skills to build effective collaborations. Identity management is a big challenge faced by IT. Many individuals in countries outside US do not have a social security number or passports. Other challenges include differences in the online meeting technology, lack of resources to establish VPN connectivity and diverse computing environments. Om ended his talk by summarizing some lessons learned. It is important to be proactive and engage IT early in setting up third party collaborations. It is equally important to build relations with internal business development and legal folks. By engaging early, the IT department can teach external partners how to use different systems and platforms used by the parent company. He advised not to roll out technologies to external partners until their suitability is checked out. In the end, he feels that the success of his department depends on their flexibility and agility while still protecting the best interests of their company.

AAiPS members with Om Basavapathruni (4th from left) at the June 2008 meeting in New Jersey.

QUOTES OF THE QUARTER

"Every morning I get up and look through the Forbes list of the most successful people in the world. If I'm not there, I go to work."- *Robert Orben, comedy writer, magician and head speechwriter to Vice President Gerald R. Ford*

"In this time of budget cuts, we cannot forget that basic science is a building block for scientific innovation and economic growth in the information age." -*Tim Bishop, New York politician and current Congressman for New York's 1st congressional district.*

UPCOMING REGIONAL MEETING

MARK YOUR CALENDARS FOR NEXT REGIONAL MEETING ON

September 25, 2008

"Alcohol Influence on Drug Release: Concepts for Rugged Formulations"

Presented by Dr. Shawn A. Kucera
Senior Application Scientist
Evonik-Degussa Pharma Polymers

Social/Networking Hour starts at 5:30 pm
Shawn's presentation at 6:30 PM, followed by Dinner at 7:30 pm.

Location: Cinnamon Indian Restaurant
2920 Rt 10 West, Powder Mill Plaza
Morris Plains, NJ 07950
Tel (973) 734-0040

Register Online at www.aaips.org, by mail or on-site For more information visit www.aaips.org or contact Punit Marathe (609) 252 5256 (punit_Marathe@yahoo.com) or Pankaj Paranjpe (203) 232 4211 (Paranjpe@gmail.com).

AAIPS 2008 ANNUAL AWARDS ANNOUNCEMENT!!

Distinguished Educator and Researcher Award for 2008 – Announced.
Dr. Arvind K. Bansal of National Institute of Pharmaceutical Education and Research (NIPER), Punjab is the distinguished faculty member selected for Distinguished Educator and Researcher Award. Dr. Bansal will visit the US as guest of AAiPS in November and will attend this year's AAPS Meeting is in Atlanta, GA, on November 16-20.

The criteria used for selecting the candidate include outstanding faculty member in the pharmaceutical arena in good standing in India and significant and consistent contribution to teaching and research in Pharmaceutical Sciences and Technology in a recognized academic institution in India. This grant is fully funded by AAiPS and facilitated by Indian Pharmaceutical Association (IPA) in India

AAIPS ANNUAL MEETING

Don't Miss This Event in Atlanta
On Wednesday November 19, 2008

American Association of Indian Pharmaceutical Scientists (AAiPS) cordially invites you to join the AAiPS Annual Meeting

CHIEF GUEST: Dr. Prakash Modi
Chairman and Managing Director
Unichem Laboratories, India

TIME:

RECEPTION	5:45 PM
KEYNOTE ADDRESS	7:00 PM
DINNER AND AWARDS	7:45 PM

Venue Atlanta Marriott Downtown
160 Spring Street. NW
Atlanta GA 30303

Visit www.aaips.org for further details

SPECIAL ACHIEVEMENTS

Our very own AAiPS past president Dr Suggy Chrai took on an incredible challenge by participating in a the Breast Cancer 3-Day event that took place in Boston on August 15, 16 and 17 that benefits Susan G. Komen for the Cure and the National Philanthropic Trust Breast Cancer Fund. The advancement in breast cancer research, treatment, education and prevention in the last 25 years is because of a Komen for the Cure grant. They are working hard to build a future without breast cancer.

He walked all 60 miles over the course of three days and raised $3000. In Suggy's words, "Your friendship, encouragement and generous contribution inspired me to focus to hard training that I had to go through. I finally walked the longest 60 miles of my life knowing that you are supporting me in the cause. More than 200,000 American women will be diagnosed with breast

cancer this year, and nearly 40,000 will die from the disease. That's why I walked. To do something bold about breast cancer".

PHARMA NEWS FROM INDIA

Compiled by Kinjal Gandhi and Anilkumar Gandhi (India)

Daiichi Sankyo's acquisition of Ranbaxy Lab: The biggest acquisition of a listed Indian company

Marking the largest ever deal in the Indian pharma industry, Japanese drug firm Daiichi Sankyo announced the acquisition of a majority stake of more than 50 per cent in domestic major Ranbaxy for over Rs 150 billion. Under the deal structure that would create the 15th biggest drugmaker globally, the Japanese firm would acquire the entire 34.82 per cent stake in the Gurgaon-based firm from its current promoters Malvinder Singh and family. Singh will remain chief executive, and Ranbaxy will remain listed in India. Daiichi has also made an open offer for up to a further 20 percent of Ranbaxy shares, as required by Indian market regulations. The takeover accentuates the global importance of India's homegrown generic pharmaceuticals industry.

The deal represents a major foray into the field of generic drugs by Daiichi Sankyo and would be the latest in a string of large overseas acquisitions by Japanese drug makers. The deal would give Daiichi Sankyo operations in 60 countries, up from 21 now. "There's a global move to generics and Japan's a bit behind on this," Mitsushige Akino, chief fund manager at Ichiyoshi Investment Management, said after reports of the deal. "India is a large market but even more important is the fact that Ranbaxy operates in a number of other countries. That's the real merit," he said. Mr Singh said: "This is a stronger, more sustainable model. We will transform to a far stronger and larger operation."

Indian drug majors to enter Brazil

Brazil is one of the emerging markets for Pharma industry in South America and India has not refrained itself from entering into it. The Indian companies are looking up to expand their product portfolio to grab maximum market share. Major Indian Pharma companies such as Ranbaxy, Glenmark Pharmaceuticals and Sun Pharmaceuticals have already set their step in. Ranbaxy has 60 products in the Brazil market and is planning to expand the portfolio by adding 20 more in the near future.

Glenmark Pharma is currently marketing 28 of its products while Sun Pharmaceuticals is slowly but steadily exploring the emerging market opportunities.

The recent declaration on the Intellectual Property rights of HIV/AIDS drugs by the Brazil government has also attracted the attention of Indian generic companies to this area. The government, recently declared the drug Tenofovir, used against HIV/AIDS, to be of public interest and the industry infers that the announcement signals the country's interest in using an option to avoid the patent on the drug and beginning the process of issuing a compulsory license for the life saving medicines. According to industrial sources, India's pharmaceutical industry may be one of the beneficiaries of this decision. With the generic version of Tenofivir the treatment cost will shrink to USD 170 per patient per year and the Indian companies can provide a saving of USD 30 million to Brazil in a year through these medicines.

The Union Ministry of Commerce and Industry of India has also recently expressed its interest for mutual investments between Brazil and India in the field of biotechnology and pharmaceuticals. In an announcement in the beginning of 2008, the ministry said that the Indian pharmaceutical companies have made a success story of their entry in Brazil and almost all the major pharma players of India have established their presence in Brazil with supply of bulk drugs, finished formulations and establishment of manufacturing units and joint ventures. The government also assured support to the industries for enhancement of the bilateral operations with Brazil, considered by the global

pharmaceutical industry as one of the emerging markets along with India, Russia and China.

India emerging as major centre for pediatric trials, account for 10% of 600 human studies

With clinical trials being outsourced, India has become a hub for even pediatric clinical trials. Out of the total 600 trials conducted so far in the country, 10 per cent constitutes studies on children and the number is growing, according to the Association of Clinical Research Professionals (ACRP). A major challenge for clinical research organizations in conducting and completing a clinical trial on pediatrics is identification of right case, seeking consent from the parent as also from the child, who most often refuses drug administration. Pediatric trials are essential for pharmacokinetic studies and to assess the safety and efficacy of the drug. For pediatric formulations, apart from accurate dosing, it was also crucial to ensure that the drug was palatable. Hence flavors and colors played a key role for easier consumption.

Piramal Life Sciences begins phase I trial for type II diabetes in Europe

Piramal Life Sciences Ltd., has commenced a phase I study of a new, orally active glucose-lowering compound, P1736, in The Netherlands. P1736 is a non-PPAR compound and is being developed for the treatment of type II diabetes. The compound is significantly different from the currently marketed drugs, as it does not have any adverse side effects on liver function, blood plasma volume expansion or those related to weight gain. The drug is being tested in a trial that will enroll 72 normal healthy volunteers. The primary objective of the study is to determine the safety and tolerability of P 1736 prior to examining its efficacy in type 2 diabetes patients.

Piramal Life Sciences has got the approval to initiate the phase I study of P1736 from the Central Commission on medical research Involving Human Subjects (CCMO), the regulatory authority of The Netherlands, and the Independent Ethics Committee of the foundation Evaluation of Ethics in Biomedical Research (BEBO), Assen, The Netherlands.

Suven Life Sciences presents preclinical data for SUVN-502

Suven Life Sciences has presented preclinical data for SUVN-502, its lead 5-HT6 antagonist drug candidate, at the 2008 Alzheimer's Association International Conference on Alzheimer's Disease in Chicago and Drug Discovery & Development of Innovative Therapeutics in Boston. Recently it has received a product patent for SUVN-502 from the European Patent Office (EPO), which is valid till June 2023.

The company is in discussions for potential licensing partners for this compound. The company targets launching the molecule in 2012 and aims to be an early launcher in this class. Other molecules in the same category currently under development include GSK's molecule presently in phase II. Expanding its horizon, Suven Life Science has opened a new regional office of the Asian Clinical Trials (ACT), the clinical research service division at Raleigh, North Carolina, USA, headed by Dr. Hameed Allaudeen, vice president of clinical research & regulatory affairs and will be supported by Deborah Levitt Smith, executive director of business development. This is in addition to the existing operations from Monmouth Junction, New Jersey.

Rubicon Research to commission CTS facility in Mumbai

Rubicon Research Pvt. Ltd., an independent product development organization based in Mumbai, India, is commissioning its Clinical Trial Supply (CTS) facility by mid this month.

Ms Pratibha Pilgaonkar, Chief Executive Officer, Rubicon Research Pvt Ltd said, “With the launch of CTS facility we will have a comprehensive, full-service and vertically integrated portfolio of services for clinical trial material development and manufacturing in support of Phase I through Phase IV studies, covering solid oral dosage forms in initial stage and other dosage forms in later stages.”

Rubicon is the first company in India to launch an independent and dedicated manufacturing facility for clinical trial supplies. And it is one of the fast

growing organizations with significant experience in the field of formulation research and drug delivery systems.

The salient features of the facility include: Total area of 130,000 sq ft. Phase I built up area of 60000 sq ft., Formulation Development Laboratory, Solid dosage forms manufacturing and Packaging facility (Blister and Bottle packs), Area for Provision of Blinding and Randomization, Uninterrupted power supply backed up with generator, cGMP compliant and US FDA and MHRA approvable, Production scalability will allow for the manufacture of Clinical Trial Material (CTM) from less than 1 kg to 120 kg batch sizes, Stability Testing Chambers as per ICH guidelines, QA office and document archival facility, Stores with areas for dispensing, quarantine etc., and CTM Depot.

Indian Patent office rejects Boehringer's patent application for paediatric nevirapine formulation

Delhi patent office has rejected a patent application filed by Boehringer Ingelheim claiming a paediatric form (syrup) of the anti-AIDS drug nevirapine. The dosage form is particularly important for children living with HIV who are unable to swallow tablets. In May 2006, the Indian Network of People Living with HIV/AIDS (INP+) and the Positive Women's Network (PWN) had filed a pre-grant opposition against this application.

Biotechnology sector registers revenues over $2.5 bn during 2007-08

The Indian biotech industry reported revenues of $2.5 billion during the financial year 2007-08. The top 3 companies Serum Institute of India, Biocon and Panacea Biotec, retained their 2007 positions. The industry's overall revenue grew to Rs 10,273 crore or $2.56 billion in the fiscal ended March 31, 2008 from Rs 8,541 crore or $2.01 billion in 2006-07. In 2007-08, nearly two-thirds of the industry's revenue came from exports. The strengthening of the rupee, therefore, was an important reason for the industry's slow down. In 2007-08, the industry's investments touched Rs 2,750 crore, an increase of over 21 per cent compared to the previous fiscal. Based on the current trends and the new progressive biotech policy in place, the survey forecast a revenue of about $13-$16 billion by 2015.

The revenues could be higher if some innovative products, which are currently in the pipeline, receive regulatory approval. Dr KK Narayanan, president of ABLE, said, "The inability to sustain the growth momentum can be attributed to several factors. The primary reason being that the revenues from Indian-made innovative biotech products, that can be sold globally, are yet to kick- in." Pune-based Serum Institute emerged as the top biotech company with revenues of Rs 987 crore for the third consecutive year followed by Biocon, Panacea Biotech and Nuziveedu Seeds. "The Biopharma Industry in India is coming of age now and the next 5 years will be an interesting period. While Bioservices will continue to attract significant interest, and Biogenerics exports to the regulated markets are likely to produce a quantum leap in company earnings , there is also a growing club of companies in India that are beginning to develop novel biotechnology based pharmaceutical products for India and the world. Besides healthcare, we also expect Biotechnology to begin to contribute significantly to other areas of the economy such as the Biofuels sector", stated Shrikumar Suryanarayan, director general of ABLE.

Biotech exports grew to Rs 5,733.7 crore in 2007-08. The share of exports in the total biotech pie is close to 56 per cent. Biopharma exports accounted for over 70 per cent of the total industry, while the Bioservices sector had 26 per cent share in exports (Rs 1,502 crore).

TOPICAL DRUG DELIVERY

Recent Interest in Enabling Technologies for Topical and Transdermal Delivery of Hydrophilic Molecules and Macromolecules

Dr. Ajay Banga
MERCER University, Atlanta, GA

Drugs currently available in a skin patch dosage form include clonidine, estradiol, fentanyl, methylphenidate, nicotine, nitroglycerin, oxybutynin, scopolamine, seleginine, and testosterone. What is common among these drugs that makes it possible to deliver them via skin? All of these drugs are lipophilic molecules that can partition into the lipids in the stratum corneum. Also, they are potent (low dosage). Many other drugs which may also have a therapeutic rationale for transdermal delivery cannot be delivered via the skin because they are water soluble and do not partition into the skin. These include many small conventional drug molecules as well as macromolecules such as recombinant proteins.

In recent years, there has been increasing interest in technologies that can enable the topical or transdermal delivery of these water soluble drug molecules. These technologies include the use of electric energy (iontophoresis), acoustic energy (phonophoresis), or the temporary physical disruption of the skin barrier by creating micropores in the skin (microporation) by using mechanical microneedles, thermal means, or radiofrequency ablation. Some other means to deliver hydrophilic drugs via skin include microdermabrasion (controlled skin abrasion), electroporation (high voltage pulses applied for micro-seconds), chemical enhancers, and carrier based approaches. Phonophoresis uses ultrasound energy (sound with a frequency beyond 20 kHz) to make the skin more permeable. Two of these technologies which are particularly promising, iontophoresis and microporation, will now be discussed in some more details.

Iontophoresis utilizes a small current to push charged molecules into the skin by electrostatic repulsion. It has been used for a long time for topical delivery of corticosteroids in physical therapy clinics using electrodes/drug reservoirs place on the body and connected to external palm-sized current delivery devices. However, recently a self contained small wearable iontophoretic patch developed by ALZA (member of J&J family of companies) for systemic delivery of fentanyl was approved. Using this patch, the patient can activate administration by pressing a recessed button to deliver a 40 mcg dose of fentanyl over the course of 10 minutes. The patch is designed to deliver fentanyl for up to 24 hours or a maximum of 80 doses, whichever comes first. Iontophoresis also has applications in medical diagnostics and a glucose monitoring device based on this principle is on the market. A pre-filled/pre-programmed iontophoretic device for delivery of lidocaine is also available from Vyteris, Inc. Transport pharmaceuticals is developing a handheld iontophoretic device for topical drug delivery for dermatological diseases, with a focus on herpes labialis. Integrated iontophoretic patches have also recently become available from Travanti Pharma and Iomed, Inc.

Skin microporation is another exciting technology that is being actively investigated by several companies for delivery of water soluble drugs and vaccines. It involves a minimally invasive technique in which transport pathways of micron dimensions are created in the skin. One means to achieve this is by using mechanical microneedles which pierce the skin to create micro-channels in the skin. These microneedles will typically be about 500 microns long and several microneedles are stacked together in a small area and inserted into the skin manually or via an applicator. Once micro-channels are created in the skin by these microneedles, a drug containing patch can be placed on the skin and the drug will pass through these micro-channels into the skin. Alternatively, for very potent drug molecules such as vaccines, the drug may be coated directly on the microneedles. Several companies such as 3M, Becton Dickinson, Corium, and Zosano Pharma (formerly Macroflux, an Alza spin off) are investigating the potential of microneedles for drug and vaccine delivery. Some other companies are using alternative means of microporation, e.g., via use of heat (Altea

Therapeutics), laser (Norwood Abbey) or radiofrequency (TransPharma). These micron sized holes in the skin are superficial, just reaching into the dermis and thus can be created without any pain sensation. Also, they are only temporary disruptions of skin barrier as the skin is constantly dividing and replacing its superficial layers. Pre-clinical data has been generated for several drugs and clinical studies are underway. The successful development of some of these technologies will expand the scope of transdermal delivery to include water soluble small as well as macro-molecules.

PHARMACOECONOMICS

Demystifying this 17-letter word

Vijay N. Joish, Ph.D., Senior Manager, Sanofi Aventis, Bridgewater, NJ

Traditionally in the United States and most of the western world, bringing a drug (for a specific indication/use) to market involves overcoming three regulatory hurdles – safety, efficacy, and quality. Once met, the manufacturer has the necessary approval to market and sell the drug within the confines of the product label. However, a drug is 'sold' only if someone 'buys' it. More recently due to greater generification and therefore cheaply and abundantly availability of current drugs, buyers (government agencies like Medicare, and private health insurance like pharmacy benefit management companies) of branded pharmaceutical products are questioning the value of new drugs entering the market. They are demanding for clinical-effectiveness (is the new product better than the currently available options and how does this new drug work in the real world?) and cost-effectiveness (is it good value for money?) evidence when making purchasing decisions. Pharmacoeconomics a sub-discipline of health economics assists in demonstrating this effectiveness evidence.

Pharmacoeconomic evidence is required in countries like United Kingdom, Canada and Australia for drug reimbursement, without which a drug will not even be approved. Although in the United States it's not mandated yet, more and more payers of healthcare like managed care organizations, employers and government (Center for Medicare and Medicaid Services) are demanding for this kind of information from the manufacturing companies. This has led to formal creation of pharmacoeconomic or health outcomes research departments within the industry. Depending on the individual company, this department may be under the marketing or medical function and mostly has a global and affiliate division. The global group is primarily involved in the early clinical development phases (I-III) of a product and the affiliate in later phases (IIIB-IV).

Pharmacoeconomic studies are conducted throughout the lifecycle of the product and begin by first understanding the reimbursement market (payer research, pricing analysis, burden of illness), competition (health economic evidence of current products), and developing pharmacoeconomic evidence to help position the product appropriately in the market where it's going to be launched. Payer needs for head-to-head effectiveness evidence are seldom available at product launch, and therefore a lot of evidence produced pre-launch is developed using economic models using data collected through piggy-backed clinical trials. Once the product has sufficient real-world use, at least 2-years out, validation studies are conducted using retrospective database health insurance claims to continue to demonstrate value to the payers. Depending on the country of launch, country-specific reimbursement dossiers for each product would be developed by the pharmacoeconomic group and made available to the appropriate authorities. For example, in the UK the National Institute of Clinical Excellence (NICE), an independent organization, which advices National Health Services (NHS), provider of free healthcare to anyone who is a resident of UK, has very specific requirements on how manufacturers provide pharmacoeconomic evidence. In the US, the Academy of Managed Care Pharmacy (AMCP) has taken the lead in developing a guidance document on the format for submission of clinical and economic data in support of managed care formulary consideration by healthcare systems in the US. Country-specific pharmacoeconomic guidelines are available at the following website for

the interested reader: http://www.ispor.org/peguidelines/index.asp.

Pharmacoeconomics is a health technology assessment technique that by virtue of being relatively young is dynamic, as health economists develop and debate new ways of assessing effectiveness. Academic education in this discipline, depending on one's perspective is therefore very exciting and challenging. Most of the pharmacoeconomic graduate programs in the US are offered through schools of pharmacy within the Social and Administrative Sciences or their equivalent departments. A typical doctoral program in this area would involve a multi-disciplinary curriculum, the backbone of which is built on quantitative sciences, with a focus on getting trained in both experimental and non-experimental statistical techniques. A student will typically take quantitative classes from school of economics (econometrics), school of social sciences like (education psychology), public health (biostatistics), to be well grounded in the theory and application of statistics. Other course work will include standard health technology assessment methods, epidemiology, marketing, and consumer behavior.
The demand and need for effectiveness (clinical and cost) evidence is only growing in this cost-conscious environment and with the ever increasing demand to demonstrate additional value, it is commonly described as a 'fourth hurdle' that needs to be overcome to gain market access and reimbursement for a pharmaceutical product.

PEOPLE ON THE MOVE

Please forward any people on the move announcements to Udoshi@its.jnj.com.

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The rates of advertisement for the AAiPS newsletter are as follows:
One year (four issues): $1000 full page, $500 half a page, $250 quarter page
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Contact: Mukund Yelvigi, myelvigi@hotmail.com
No advertisements under a quarter page

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