HKCP ALUMNI BULLETIN

Issue-XI, Sep- 2013

From the Editors Desk:

Dear Alumni,

I am pleased to present the 11th issue of alumni bulletin. Within this 6 year the college has improved a lot and touched each and every area academic as well as co- curricular activities. A scientific week "Techcrunch" was celebrated from 23rd Sept to 28th Sept. It was full of activities such as Industrial visit, model making, poster presentation, debate, quiz and one day national seminar. The step taken by the FDA that every community pharmacy/retail pharmacy should run by a registered pharmacist is good news for the pharma sector. It has created an awareness as well as great impact in our society. This year more than 500 admission forms have been issued from our college.

The 4th issue of college magazine- 'Impuls' is going to be published in the current academic year. Ex-student willing to publish articles are welcome. The E-mail ID for submitting the article id editimpulse13@gmail com.

Research update in pharmacy section reveals about Nosocomial Infection.

In Success secret series the present issue carries an article "Industry- institute relationship: A review".

As ever we always work towards giving you more and more of news about college, do send us your views and suggestions.

With best wishes

SheelaYadav

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Campus News:

- Teacher's day was organized by student council.
- One day international seminar on introduction to scholar software was conducted on 4-9-13.
- The fresher's party and Independents Day was celebrated and organized by Cultural committee and student council.
- Industrial visit was on 23rd and 24th Sept. It was at Silvasa and arranged by Mr. Amol Borade sir.
- Scientific Day was programed on 26th Sept:- many activities such as oral presentations, model making, debate and quiz competitions was organized by the scientific committee.
- National seminar was organized on 28th Sept. The topic for the seminar was "Techniques of taste masking and evaluation and Intellectual property Right (IPR) and Patent Drafting". That was delivered by different eminent personals.
- Poster presentation was organized on 28th Sept, having different themes and evaluated by Dr. Rajani Athawale, C.U.Shah College of Pharmacy, Mr. Arvind Naik, St. Johns College of Pharmacy, Dr. Rashmi Srivastava and Mrs. Sheeja Koliyote from MET college of Pharmacy, Dr. Mrunmayee Toraskar, Bharati Vidyapith College of Pharmacy.
- Prizes winner for different activities are: 2nd prize for model making form 1st year B Pharm, 1st prize winner Zaid Temrikar and group for debate competition, 1st prize winner for quiz competition are Zaid Temrikar and group.
- Hospital visit was arranged to TPNC & BYL Nair Hospital for 3rd year student under the guidance of Mrs. Priyanka Goswami and Mohd Wais.
- Blood donation camp was arranged in the college by faculty Shrikant Boharupi and Amol Borade and student council.
- Health campaign was headed by Shrikant Boharupi and Amol Borade and students from 1st, 2nd and 3rd year have taken part actively.

Dr. SANCHITA MANDAL

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TOTAL EXPERIENCE: 7 year

RESEARCH EXPOSURE---4.5 years

ACADEMICS EXPOSURE --- 2.5 years

1. Dr. B.C. Roy college of pharmacy and AHS, Durgapur, WB,
2. Bharti Vidyapeeths College of Pharmacy, C.B.D. Belapur, Navi Mumbai.

EDUCATIONAL QUALIFICATIONS

Sr. No.	Course	University/Board	Year of Passing	%	Class/Grade
1.	PhD	Jadavpur University, Kolkata, WB	2012	-	-
1	M.Pharm (Pharmaceutics)	Jadavpur University, Kolkata, WB	2006	78.05	First Class
2	B.Pharm	Jadavpur University, Kolkata, WB	2004	75. 05	First Class

Project in Ph. D.: "Development and evaluation of matrix tablet using natural polymer for sustained release of a highly water soluble drug" under the guidance of Prof.(Dr.) B Sa and Prof.(Dr.) S.K. Basu.

SEMINAR, CONFERENCES & PUBLICATIONS

1. **Sanchita Mandal**, Sanat Kumar Basu and Biswanath Sa. Sustained release of a water soluble drug from alginate matrix tablets prepared by wet granulation method, ***AAPSPharmSciTech***. 10(4) (2009), 1348-1356.
2. **Sanchita Mandal**, Rajat Ray, Sanat Kumar Basu and Biswanath Sa. Evaluation of matrix tablet prepared with polyacrylamide-g-sodium alginate copolymers and their partially hydrolyzed copolymers for sustained release of diltiazem hydrochloride.***Journal of Biomaterial Science - polymer edition***. 21 (2009), 1799-18-14.
3. **Sanchita Mandal**, Sanat Kumar Basu and Biswanath Sa. Ca^{2+} ion cross-linked interpenetrating network matrix tablets of polyacrylamide-grafted-sodium alginate and sodium alginate for sustained release of diltiazem hydrochloride. ***Carbohydrate Polymer***. 82, (2010), 867-873.

Date of Birth	:	**23rd February 1982**
Permanent Address	:	**B-8/ 304, Swayam CHS, Poonam Garden Complex, Mira Road (E), Thane (Dist)-401107**
Marital Status	:	**Married**
Languages known	:	**English, Hindi, Malayalam, Marathi**

Name :Dr. Rhea Mohan

PREVIOUS EXPERIENCE:

MUMBAI UNIVERSITY PANEL APPROVED ASSISTANT PROFESSOR (PARMACEUTICAL CHEMISTRY): August 2011- December 2012 (Fifteen months) at Bharati Vidyapeeth's College of Pharmacy, Navi Mumbai

EDUCATIONAL QUALIFICATIONS

Degree	Institute/ University	Title of thesis	Class	Year of passing
Ph.D (Tech). (Pharm. Chem.)	Bharati Vidyapeeth's College of Pharmacy, Mumbai University	Design, synthesis and biological evaluation of new chemical entities (NCEs) as potential anti cancer agents.	NA	2013
M. Pharm. (Pharm. Chem.)	Bharati Vidyapeeth's College of Pharmacy, Mumbai University	Studies on Prodrugs	First class with Distinction	2007
B. Pharm.	Bharati Vidyapeeth's College of Pharmacy, Mumbai University	NA	First class with Distinction	2003
Qualified Graduate Aptitude Test for Engineering (GATE) in March 2004 with a percentile score of 88.75				

PHD DISSERTATION WORK (PHARMACEUTICAL CHEMISTRY)

Title of Thesis : **Design, synthesis and biological evaluation of new chemical entities as potential anti cancer agents**

Research Mentor	:	**Dr. (Mrs.) C. S. Ramaa**
Designation	:	**Senior Research Fellow (Awarded by BRNS, BARC)**
Funding agency	:	**BRNS, BARC**

M. PHARM. DISSERTATION WORK (PHARMACEUTICAL CHEMISTRY)

Title of Thesis	:	**Studies on prodrugs**
Research Mentor	:	**Dr. (Mrs.) C. S. Ramaa**

PUBLICATIONS

1. **Rhea Mohan**, Ajit Kumar Sharma, Sanjay Gupta* and C.S. Ramaa*; Design, synthesis and biological evaluation of novel 2, 4-thiazolidinedione derivatives as histone deacetylase inhibitors targeting liver cancer cell line; *Medicinal Chemistry Research* , 21(7), **2012**, 1156-1165.
2. Tabreskhan Pathan, Sachin Ingale, Ashish Sharma, **Rhea Mohan** and C. S. Ramaa*; Synthesis and preliminary evaluation of difluorinated 1,3-propanediones as potential agents in the treatment of breast cancer; *Medicinal Chemistry Research Medicinal Chemistry Research* , 21(5), **2012**, 584-589.
3. Ashish Sharma, Tabreskhan Pathan, **Rhea Mohan** and C. S. Ramaa*; Synthesis and *in vitro* antitumor activity of novel fluorine containing pyrazoles and pyrazolines; *Letters in Drug Design & Discovery*, 8(9), **2011**, 843-849.
4. Vijay Patil, Kalpana Tilekar, Sonali Mehendale-Munj, **Rhea Mohan** and C. S. Ramaa*; Synthesis and primary cytotoxicity evaluation of new 5-benzylidene-2,4-thiazolidinedione derivatives; *European Journal of Medicinal Chemistry*, 45(10), **2010**, 4539-4544.
5. Sachin Ingale, Tabreskhan Pathan, **Rhea Mohan** and C. S. Ramaa*; Synthesis and preliminary evaluation of a series of difluorinated chalcones as potential antiproliferative agents in the treatment of breast cancer; *International Journal of Drug Design and Discovery* , 1(3), **2010**, 209-216.

Photo Gallery:

Teachers day 5-09-13

Seminar on scholar software-By Bill compe

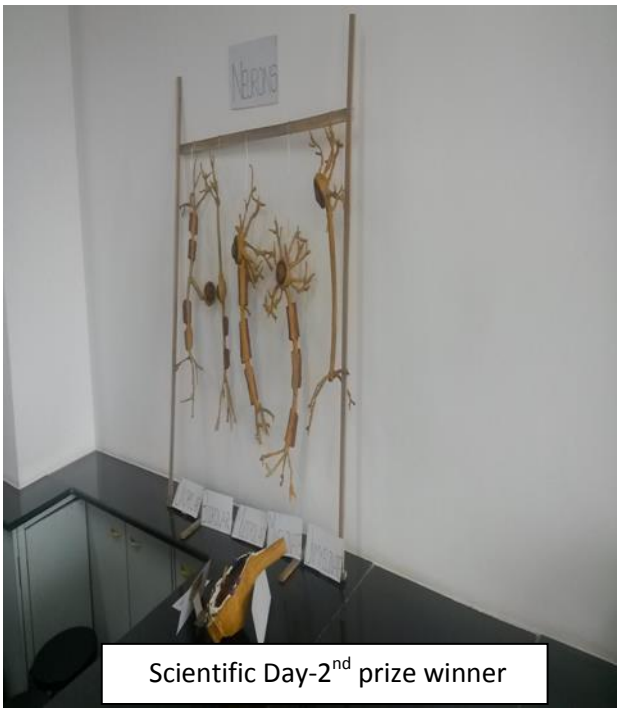
Independence Day

Health campaign-Gengue

Freshers Party-Miss fresher Pooja

Blood Donation camp

National Seminar-By Sandip Mane



Scientific Day-2nd prize winner

Success Secrets Series:

Article by: Mrs. Shushruta Mulay

INDUSTRY- INSTITUTE RELATIONSHIP: A REVIEW

Academia's primary function is education, learning, research, and knowledge generation. Recognizing and strengthening the role of academia as a trusted actor with a long term vision of service to society is important. Facilitating the ability of students and academics to gain experience in business settings and of industrial professionals to work in academic settings is important. Innovation by both academia and industry has substantially contributed to enhancing the quality of life, but primarily in the developed countries. It is not only research and technology that is needed for innovation to flourish what is also needed is creative culture, the acceptance of failure and a specific inspiring environment. Both academia and industry have developed a remarkable capacity to use the tools of research technology to address societal challenges.

Fashionable research and non-applicable applied research is destroying research at universities. Industry wants people who have really been dealing with challenges. It was observed that with a global shift in health innovation to new regions, comes the urgent need to attend to the concomitant responsibilities, such as awareness of the risks of dual-use research and technologies inherent in carrying such work. Research on the flu virus is a good example. Academic institutions that establish relationships with industry can benefit greatly because industry provides necessary resources and facilitates the design and development of new and unique technologies that they can then deliver to the public and get necessary feedback. Industry can also provide employment and possible individual endowment funding from wealthy industrialists who get to know researchers and come to value working with academia.

Academia, in cooperating with industry, must maintain certain safeguards, including the freedom to pursue basic research ideas and to build up their general competencies. At the same time, there must be a willingness on the part of academia to consider the option of patenting or setting short-term exclusivity limits.

Education is a vital service to current and future generations. Academic institutions are, above all, in pursuit of intellectual challenge, independent thought and research, the discovery of imagined knowledge, becoming a trusted source of wisdom and, on occasion. Although intellectual freedom is appreciated by industry, collaboration can also frustrate industry because academic research can be slow and intellectual property rights can present a hurdle does not understand the significance On the other hand,there must be a willingness on the part of academia to consider the option of patenting or setting short term exclusivity limits if they are to establish viable partnerships.

The potential specialization of individual academic institutions has increased, as has the ability of leading institutions to make significant progress in basic research. It was pointed out that if academic institutions are too "customer focused" they will be unable to maintain a stable foundation for knowledge creation and dissemination; yet, in a wide area of great societal significance, new research ideas or opportunities may only be discovered or developed while working closely and interacting with industry. It is young people, close to the frontiers of knowledge, who often facilitate knowledge transfer because they have been trained in the innovative process by industry for future employment.

To overcome some of these imbalances and increase understanding, the academic sector should consider offering to industry such opportunities as visiting professorships, service on boards contributing to the formulation of curricula, guest speaker slots, advice on applications of research results, etc. Industry, for its part, could offer academics sabbaticals and secondments with opportunities for business challenges, and consultation on how to move basic research to commercial applications. Schools of Pharmacy in the U.K. have operated and assessed undergraduate research projects in very different ways. The present study looked at current thinking regarding the provision of undergraduate research project modules.One such example is about globalization in research 3 billion effort by about 3,000 people in six countries led to the publication of the draft human genome sequence. Almost routine sequencing of individual human genomes, bringing closer possibilities such as addressing disease through personalized medicine. These profound accomplishments would not have been possible without openly available data for both academia and industry to use in a pre-competitive manner. Biomedical innovations that have contributed to substantial increases in lifespan such as the artificial heart, revolutionary pharmaceutical products, and diagnostic equipment such as X-rays and MRI instruments.

The priorities of industry in working with academia, such as intellectual contributions, technological skills, proximity to industrial hubs, and provision of competent and well-educated employees for industry. The roles of academic institutions in a rapidly changing world, including the necessity and ability of academia and industry jointly to bring major issues and potential solutions to policy makers and the public. Knowledge is at the top of the purpose of universities. The higher education sector is recovering from decades of neglect and underfunding, resources are often inadequate to provide core education functions, and the knowledge production capacity needed to drive new interactions is not available.

The industrial sector primarily focuses on small and medium scale operations that target immediate and local needs. Where we find high technology producers and export-oriented manufacturers, their research and development infrastructure is often located elsewhere, without the geographical proximity that seems to be an essential ingredient for successful interactions. In order to thrive in a fiercely competitive, usually export, market, the drive to innovate through the application of new knowledge and new technology remains weak, and for support or collaboration is highly unlikely to knowledge institutions.

Today healthcare professionals have a few tools to fight infections due to the indiscriminate use of antibiotics and the rapid global spread of drug resistant bacteria. Hence a need for development of new classes of antibiotics is apparent globally,(As there is a 30 year gap in development of new antibiotics. The treatment of global diseases such as tuberculosis and *malaria.* Finding the next generation of antibiotics due to high cost involved in bringing a new drug to market. is crucial if we are to stay ahead of the curve in the face of bacteria and other pathogens which are resistant to drugs. The models show potential for industry to tap the underutilized capacity of graduate programmes in the pharmaceutical sciences to work on problems important to the pharmaceutical industry.

In India, home of one-sixth of the world's population, and the third largest (by volume) producer of pharmaceutical products, the prototype of a new tripartite partnership involving government (Technology Information, Forecasting & Assessment Council, TIFAC) industry, and academia has been launched, with the goal of converting India into a drug discovery and pharmaceutical innovation hub. In Europe, the Innovative Medicines Initiative (IMI) (Europe's largest public-private initiative) is an example of new ways of working together. IMI is a joint undertaking between the European Union and the pharmaceutical industry. aiming to speed up the development of better and safer medicines for patients. Improving the efficiency of research and development of new antibiotics, provided there is an

unprecedented open sharing of knowledge. Investment in research and innovation will mean the best possible care for patients, to make this a priority.

Accessible health care for all; equitable access to medicine to treat the most dangerous diseases and increased understanding of stem cells and associated technologies that develop will fuel the growth in the fields of regenerative medicine and synthetic biology. Also essential is continued investment in basic research, if we are to address both immediate and long-term problems and make the necessary scientific progress. But, it cannot be forgotten that, research also contributes knowledge that is important for its own sake, yields practical applications, and enhances economic growth. Science and industry increasingly must work efficiently and in partnerships so that scientific discoveries reach the people who need them at affordable prices, both locally and globally. In addition, such partnerships tend to solve interrelated but also cross-disciplinary problems that can be mutually reinforcing and beneficial.

There was agreement that, to produce motivated, innovative researchers who will meet societal needs for discoveries and new scientific thinking, it is essential that starting at the undergraduate level, students are given a solid, creative and challenging basic education where freedom within academia is a priority, awareness of global challenges is integrated into the curriculum, and an inventive, creative spirit is fostered. Scientific research, increasingly, is multi-disciplinary and often involves international collaboration that is essential in understanding problems and their social, political and cultural contexts, as well as gaining a better understanding of the local and global environment.

By establishing partnerships, academia brings credibility, cutting edge knowledge, new and interesting ideas, and intellectual and physical resources to the table while industry brings influence, training, technical know-how, significant research problems and financial resources. Such collaboration can involve small higher-education colleges cooperating with local enterprises that buy their technical development from others; or leading research universities with global networks that collaborate with major companies that have considerable research capacities. It reduces cost and partnerships make academics more aware of and responsive to industrial and societal needs Industry also stands to benefit because research and development need multiple approaches, including fundamental research, to understand the phenomena behind the technology. Often discoveries are made in basic research, which can rapidly be transferred into industrial developments and thus 'short circuit' the linear model. The effect of this "short circuit" model can be to reduce industrial costs and improve the quality of the products developed.

Academia industry interactions contain inherent tensions between the need for open access to scientific data and intellectual property rights. Pharmaceutical expenditure has been rising steadily as a share of GDP since 1970. However, total health expenditure has also risen. The evidence base needed for pharmaceutical policy making is also somewhat specialized in relation to health policy. The knowledge base for good pharmaceutical policymaking needs to be broad and include approaches and methodologies ranging from the highly quantitative and experimental to the purely qualitative. Other policy questions such as those concerned with rational use of medicines and economics illustrate that pharmaceutical policy needs more varied approaches than randomized clinical trials alone can provide. The importance of gaining a thorough overview and understanding of the available design and methodological options for policy analysis is emphasized. Research into pharmaceutical policy has many commonalities with evaluation and policy analysis. Some of the main pitfalls that policymakers, researchers and analysts can fall into when formulating and evaluating pharmaceutical policy are discussed and include: The authors conclude this series by advocating a strong focus on research and an international evaluation culture

around pharmaceutical policy. They emphasize the importance of pharmaceutical specialists' (i.e., pharmacists') involvement in pharmaceutical policy analysis and the policy consultative process.

A collaboration to discover and develop biologic therapeutic candidates from early research through Proof-of-Mechanism in humans is needed. Believe that the combination of the operating model, financial resources and scientific expertise will bring novel programs to the clinic to benefit investigators, their institutions and most importantly, patients. Scientific breakthroughs are most likely to occur when scientists are free to tackle problems from different angles and in different ways. We believe that a diversity of views, cultures and approaches promotes creativity, especially in research and early development.

Whilst open innovation in pharmaceutical R&D has been talked about for some time, it has only recently started to achieve the traction required for successful implementation. The barriers to full adoption are often centred on three key areas that remain unaddressed. Access to knowledge, innovation and talented individuals residing internally and externally through the development of high quality, reliable and extensive networks of strategic partners.

Despite an over three-fold rise in spending on pharmaceutical research and development there is an increasing mismatch between people's real needs and pharmaceutical innovation. We must ensure that industry develops safe, effective, affordable and appropriate medicines to meet future health needs," From a public health point of view, the trend towards an increasing population over 65 leads to a greater prevalence of diseases and conditions associated with ageing, such as heart disease, stroke, cancer, diabetes, osteoarthritis, low back pain, hearing loss and Alzheimer's disease. In combination with health promotion and disease prevention initiatives, these conditions require more investment in research and innovation to bridge the pharmaceutical gaps. Since the original report was published in 2004, progress has been mixed. Multiple small-scale trials of combination therapy have been undertaken, but no large-scale studies have been initiated. One such example is fixed-dose polypills for ischaemic heart disease (or myocardial ischaemia) Although there are some promising results from small trials, we need investment in large-scale trials to have the evidence to see if we can get the right formulations and make this work in practice to save more lives."

Areas for future research are needed to be identified. One is the need for more medicines that do not require storage in cool temperatures, such as heat-stable insulin for diabetes and oxytocin for childbirth. These would provide an important benefit to health services in countries without consistent access to refrigeration**.**

The future is not so far if academia and industry put the efforts to improve global standards in Pharmacy.

Research updates

NOSOCOMIAL INFECTIONS

Article by: Waseem Shaikh

A nosocomial, or hospital-acquired, infection is a new infection that develops in a patient during hospitalization. It is usually defined as an infection that is identified at least forty-eight to seventy-two hours following admission, so infections incubating, but not clinically apparent, at admission are excluded. With recent changes in health care delivery, the concept of "nosocomial infections" has sometimes been expanded to include other "health care–associated infections," including infections acquired in institutions other than acute-care facilities (e.g. nursing homes); infections acquired during hospitalization but not identified until after discharge; and infections acquired through outpatient care such as day surgery, dialysis, or home parenteral therapy.

Early studies reported at least 5 percent of patients became infected during hospitalization. With the increased use of invasive procedures, at least 8 percent of patients now acquire nosocomial infections.

The most frequent types of infection are urinary-tract infection, surgical-wound infection, pneumonia, and bloodstream infection (see Table 1). These infections follow interventions necessary for patient care, but which impair normal defenses. At least 80 percent of nosocomial urinary infections are attributable to the use of an indwelling urethral catheter. Surgical-wound infection follows interference with the skin barrier, and is associated with the intensity of bacterial contamination of the wound at surgery. Nosocomial pneumonia occurs most frequently in intensive-care-unit patients with endotracheal intubation on mechanical ventilation—the endotracheal tube bypasses normal defenses of the upper airway. Finally, primary nosocomial bloodstream infection occurs virtually only with the use of indwelling central vascular catheters, and correlates directly with the duration of catheterization.

Table 1

Frequency of most common nosocomial infections

Infection Site Incidence

	All patients	Device-related
Urinary tract infection	2.34/100 admissions	5.3-10.5/1,000 catheter days
Surgical site infection	4.6-8.2/1,000 discharges	2.1-7.1% of wounds
Pneumonia	0.5-1.0/100 admissions	9-47% ventilated patients 1-3%/ventilator day
Central vascular line	—	1.4% of central catheters 1.7/1,000 catheter days

The clinical status of the patient is important in the development of infection. Many hospitalized patients, such as leukemia patients or transplant patients, have profoundly impaired immunity due to both their disease and therapy. These patients are highly susceptible to infection, frequently with organisms that do not cause infection in normal persons. Patients with neurologic problems may have swallowing difficulties due to aspiration of bacteria from the mouth or stomach, which can lead to pneumonia. Patients who have received antimicrobials may develop nosocomial infectious diarrhea caused by Clostridium difficile.

The hospital environment may also contribute to infections. Repeated outbreaks of Legionnaire's disease caused by organisms in a hospital's potable water or in air conditioning cooling towers have occurred. Increases in Aspergillus spores in the air during hospital construction cause fungal pneumonia in some immunocompromised patients, with a mortality rate of over 50 percent. Bacterial contamination of sterile intravenous fluids or equipment has repeatedly caused outbreaks of nosocomial infections. Finally, patients may acquire tuberculosis or chicken pox from other patients.

Prevention

The European Prevalence of infection in Intensive Care (EPIC) study identified several factors predisposing a patient to nosocomial infections (Table 1). Poor hand hygiene is responsible for 40% of infections transmitted in hospitals. Surveys have shown that the improvement in compliance with hand washing reduces nosocomial infection. Accessibility of the hand washing stations and the use of alcohol gels improves compliance with hand washing. Alcohol gel dries quickly, and is bactericidal, fungicidal and virucidal. Numerous studies have shown that doctors wash their hands less frequently than nurses and backs of hands, tips of fingers, web spaces and thumb are commonly missed areas.4 The Department of Health has produced guidelines on hand washing on their website .

Factors that predispose to nosocomial infection

1) **Related to underlying health status**
   - Advanced age
   - Malnutrition
   - Alcoholism
   - Heavy smoking
   - Chronic lung disease
   - Diabetes
2) **Related to acute disease process**
   - Surgery
   - Trauma
   - Burns
3) **Related to invasive procedures**
   - Endotracheal or nasal intubation*
   - Central venous catheterisation*
   - Extracorporeal renal support
   - Surgical drains
   - Nasogastric tube
   - Tracheostomy
   - Urinary catheter*
4) **Related to treatment**
   - Blood transfusion
   - Recent antimicrobial therapy
   - Immunosuppressive treatments
   - Stress-ulcer prophylaxis*
   - Recumbent position
   - Parenteral nutrition

Length of stay*

Protective garments are necessary for health providers exposed to body fluids, for example sweat, oropharyngeal fluids, blood or urine. Gloves and aprons should be worn for handling body fluids. High efficiency particulate air (HEPA) filter masks are recommended for sputum smear positive patients with tuberculosis, particularly for cough-inducing procedures.5 Hands must be washed after glove removal as contamination of the hands can still occur.

The use of invasive procedures increases the risk of nosocomial infections. For venous access, this risk can be reduced by use of specific sites such as subclavian vein rather than internal jugular or femoral veins. Tunnelling the catheter reduces the risk of nosocomial infection. Antimicrobial impregnated catheters can reduce catheter related infections. The use of a strict, aseptic technique is paramount in the insertion of intravascular catheters. By using isolation rooms for patients with MRSA, C. difficile, VRE and resistant Gram-negative infections, the spread of infection can be reduced owing to improved awareness of the implementation of appropriate infection control precautions.

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Antibiotic use

Appropriate use of antibiotics is important. Up to 30% of ventilator associated pneumonias are treated inadequately. There is increasing evidence to suggest that the use of appropriate and early antibiotics improves morbidity and mortality. Appropriate antibiotic use requires a thorough knowledge of their mode of action (Table 3), previous antibiotic history, local bacterial resistance profile and local pathogen prevalence. Antibiotics should be administered at the right dose and for the appropriate duration. The local antibiotic formulary and consultant microbiologist are valuable resources.
