

learning; testing at the point of admission, to determine students' academic training of the importance of lifelong learning; testing to determine what lifelong learning skills the student may already possess; developing appropriate professional attitudes in the classroom and through mentoring as well as faculty role models; training to help students identify their personal learning needs; and fostering the development of independent study skills to include problem solving, inquiry, critical thinking and analyses. The interface at which schools have an opportunity to foster lifelong learning is not limited to the undergraduate setting. Rather, the opportunity and responsibility is part of a lifelong continuum. After graduation, the responsibility shifts somewhat resulting in a focus on providing pharmacists with an opportunity to achieve their lifelong learning needs. Roles to fulfill this responsibility would include: providing encouragement, assistance and counselling to help pharmacists identify their learning needs as well as match these needs with available educational opportunities; offering realistic and significant educational opportunities for practicing pharmacists to enhance their skills; extending the walls of the on-campus classroom to provide pharmacists with access to credit-based course work; and serving as a leader in the educational marketplace to help pharmacists meet their ongoing learning needs dictated by practice changes within the profession. The responsibility for schools of pharmacy relative to lifelong learning is not on a limited time basis. As outlined here, responsibilities and roles may differ between the undergraduate and postgraduate environment. However, the common thread that transcends these responsibilities distinguished by time is the ultimate responsibility for advancement of the profession of pharmacy. This advancement can only be achieved through a close liaison between schools of pharmacy and the profession itself. The liaison will help foster a common vision of the profession of pharmacy and thus, support the role which education will play in achieving this vision.

The Role and Responsibility of the Profession. C.J. de Blaey, *Royal Dutch Association for the Advancement of Pharmacy, The Hague, The Netherlands*. To define the role and responsibility of the profession on any subject is only possible if the subject itself can be related to the goals a profession has. Therefore the goals of the pharmacy profession will be defined, using the mission statement that was recently adopted by the Dutch public pharmacists. This means that for this presentation community pharmacy is taken as the central point. The discussion of the subject, however, will take place on such a level of abstraction that the reasoning will be equally valid for hospital and industrial pharmacy. Mission statement: The pharmacist is competent on drugs. He promotes the justified use of drugs. He advises on the choice and safe use of prescription and OTC drugs, through medication surveillance and personal information. He also advises on medical supplies and enables justified and individual home care. He confers with physicians on choice and use of drugs and medical supplies. In this way he promotes a qualitative high standard and affordable health care. The pharmacy is a modern establishment with specialized personnel, which dispense and compound drugs. Translated in position terms this means: quality, safety, reliability, accessibility, client friendliness, competency but also being a center for information and a public advisor. To achieve this a set of tasks can be defined. For these tasks the level on which these are performed is needed. Following this it is necessary to operate a system of evaluation and to develop ways of improvement. The way in which Dutch pharmacists have done this will be subject of the presentation. From this illustration it will rapidly become apparent that one single education, of however high quality, can never provide the required knowledge, skills and attitude to function during one's lifetime. Continuing education therefore is the only way to cope with the needs of a profession in a rapidly changing world. The profession has to task to continuously make clear what the needs of the pharmacists are that will enable them to satisfy the needs of their customers. The university education of pharmacists should lay a sound basis for this, consisting of a thorough academic training in which a scientific basis is created in the field of drugs and patient care and the ability to judge coming developments on its true merits. Permanent continuing education should do the rest.

Continuing Education and the Specialization. D.J. Temple, *The Welsh Centre for Postgraduate Pharmaceutical Education, The Welsh School of Pharmacy, King Edward VII Avenue, Cardiff CF1 3XF, Wales, U.K.* The pharmacy profession has now well accepted the concept of life-long learning. Until recently in the UK as in other countries, there has been a clear distinction between continuing education (CE) on the one hand and on the other, further education and training in specialist areas of professional practice. The former is recognized as on-going updating or refresher training, required by all practitioners to keep up-to-date with changes in the use of drugs as well as legal aspects of pharmacy. This is often provided as evening and/or weekend courses or as self study material. It can be likened to Lewis Carroll's picture of Alice in 'through the looking glass' running faster and faster to remain in the same place. In contrast, further education usually is an intensive on-off course studied over a specific time period,

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The Role and Responsibility of the Schools of Pharmacy. A.L. Hanson, *School of Pharmacy, University of Wisconsin, School of Pharmacy, Madison, Wisconsin*. Schools of Pharmacy are in a unique position to have an impact on the profession of pharmacy relative to pharmacists' desire and capability to participate in continuing education. Use of the term 'lifelong learning' instead of continuing education emphasizes and confirms that professional continuing education is indeed a lifelong process. The opportunity for schools to nurture future involvement in lifelong learning first presents itself at the undergraduate level and continues throughout one's lifespan in the profession of pharmacy. Associated with this opportunity are certain responsibilities. The responsibilities - and corresponding roles - are dependent in part on the point one is at on the continuum from student to mature practitioner. At the undergraduate level, the primary responsibilities are at least twofold: to sensitize the students with regard to the need for lifelong learning in the profession; and, provide students with the skills necessary to participate in benefit from lifelong learning. The roles utilized by schools to meet these responsibilities may be varied, but might include the following activities directed toward students: advising, in recruitment and throughout students' academic training, of the importance of lifelong

which leads to a greatly increased knowledge and ability in a specialized area. Often it is provided as a university course culminating in a higher degree or diploma. Usually such specialization is required or at least highly recommended before a pharmacist can be employed in certain areas of practice. In the UK, such courses have been offered by many of the schools of pharmacy since the late 1960s, in areas such as biopharmacy, hospital and clinical pharmacy, pharmaceutical analysis and so on. Many pharmacists have looked outside of pharmacy for further qualifications, such as to business or law degrees. Very recently, some pharmacists have been encouraged to become formally trained in social science research methodology. In the UK at least, these concepts are no longer quite so easily separated. A realization has crept in that even after further training, the specialist pharmacist still requires CE, although maybe of a different type to his less qualified colleagues. But most changes are occurring with CE itself. The Nuffield Report in 1986 suggested a number of new roles for community pharmacists in particular, but recommended that suitable initial training be undertaken before a pharmacist embarked on such roles. Provision of pharmaceutical services to residential homes for the elderly and the maintenance of patient medication records for certain at-risk patients were the first of these for which payment has been made since 1989. In both cases it is mandatory for pharmacists to have completed the official self-study packages available from the National centers of CE before receiving such professional fees. These packages were clearly breaking new ground and not merely providing a refresher. Since then almost half of the educational opportunities offered by the National Centers have been targeted towards such new roles. All the National Directors of CE, are now investigating ways to allow participants of CE to accumulate some form of credit, which can in turn be traded in for a recognizable academic qualification. With all such schemes, a distinction in being drawn between mere attendance and successful completion of the course. A pilot scheme is about to commence in the County of Dorset, in which a Continuing Professional Development Award endorsed by CONTACT (A consortium of universities in the North of England) will be awarded for successful completion of 120 hours of approved training. The Welsh School of Pharmacy, will be offered for successful completion of courses. These may allow some pharmacists to gain exemption from some modules of the School's diploma course. However, there is a fear that some pharmacists may believe that completion of such certificated courses would then equip them for life. Official first aid and life saving certificates in the UK are valid for only three years. A similar concept of a shelf life on future pharmacy CE certificates is likely to be introduced. It remains to be seen how successful these developments will be in stimulating further participation in organized CE.

Demonstration of the World List of Schools of Pharmacy on the Internet. David J. Temple, *The Welsh Centre for Postgraduate Pharmaceutical Education, The Welsh School of Pharmacy, King Edward VII Avenue, Cardiff, CF1 3XF, Wales, U.K.* Addresses of schools of pharmacy worldwide have been collected since 1984 by author, who was then the General Secretary of the Academic Section of FIP. Initially information was taken from the World Directory of Schools of Pharmacy, 1963, which had been published by the WHO, supplemented by information from members of the Section. A preliminary print-based edition of the list was produced for Academic Section members in July 1986 prior to the Helsinki Congress of FIP. As a result of interest shown in the list and a considerable amount of revised information generated, the first definitive edition of the World List of Schools of Pharmacy was produced in time for the Amsterdam Congress of FIP in the following year. Further editions were produced in 1989 (reprinted in 1990) and 1993. A new print-based 4th edition is in preparation and will be published by FIP later this year. The International Pharmacy Student's Federation (IPSF) have collaborated with FIP in providing some revised information on their members' schools. Communication via computer between academics within universities across the world have improved considerably over recent years. Not only have the large main frame computers in each campus been linked by land line and satellite connections, but within each campus, more and more individuals have been able to link their own personal computers into their University's system. Efficient software has been developed to enable communication to take place directly from one desk to another across the globe, the so-called superhighway. Two of the most useful tools within this system are e-mail (electronic mail) and WWW or the World-Wide-Web. Simple versions of the World-List of Schools were made available on this system early in 1994, using a server in the school of pharmacy in Leicester, and more recently a server maintained in the Oklahoma School of Pharmacy in the U.S. Upgrading of computer facilities within the Welsh School of Pharmacy has allowed a server to be established in this school. Hence the List has been available on this system since February 25th 1995. The URL address is: <http://orchid.phrm.cf.ac.uk/WWW-WSP/SopListHomePage.html>. The presentation of the list has been developed such that it is no longer a simple linear

presentation in alphabetic country order. Each country can be inspected in isolation. Where schools have established their own servers, a direct link has been established, so that clicking on the school's name switches the user directly into the computer in that school. Whatever information that school has decided to mount on its server, including for instance staff names, research interests, history of the school, degree programs offered, is all instantly available to the browser. In response, many schools are including direct pointers to the list in their general information sections. However, one of the beauties of WWW is that the browser can always retrace their steps back the way they have come, i.e., back to the list to examine further schools elsewhere. A further neat trick is the listing of e-mail addresses of key contacts within each school (very often the Dean or Head). Other staff, who regularly use e-mail may also be listed. The e-mail address is set up as hot button, so that when clicked (provided the correct software is used locally) a correctly addressed blank e-mail message appears. This allows for extremely simple international communication. It is to be hoped that the launch of a version of the list on the World Wide Web will allow greater access to this data and facilitate a continual update of information to be provided. Users of the service are asked to contact the author direct with any corrections, omissions or other suggestions to improve the service. His e-mail address is: temple@cardiff.ac.uk.

Teaching of Ethics in the Pharmacy Curriculum. Vincent J. Giannetti, *School of Pharmacy, Duquesne University, Pittsburgh, PA, U.S.A.* Teaching pharmacy students to understand the ethical dimensions of health care is crucial for preparation to deliver pharmaceutical care. There are, however, significant barriers and problems in educating students to be able to frame and analyze ethical dilemmas. The cultural climate of ethical relativism, student difficulty in tolerating a lack of certainty and ambiguity, the abstract nature of philosophical concepts, and student lack of significant clinical experience make ethical analysis of pharmaceutical care issues difficult for students to understand and articulate. The traditional practice of presenting theories, methods and principles with follow-up case analysis utilized to apply the material presented in lecture and discussion has been modified in this approach. This approach begins with a case without students receiving any formal instruction in theory, principles and methods. Students then attempt to solve the case with instructor challenging and environment of controlled confusion. Theory, principles and methods are then introduced to impose some order on the process by having students develop universal principles for use in analyzing the case utilizing reason and consensus. The results of the students' discussion are then related to theory, principles and methods in ethics. The framework of student generated principles is expanded with standard ethical analysis and used to resolve the ethical dilemma in the original case presented. This approach allows students to experience social contract and the use of reason as a ground for ethical analysis. The correspondence between rational ethical principles and theological approaches to ethics can be discussed, thus broadening the base for ethical analysis. The advantages of this approach is that it assists students in experiencing the inadequacy of ethical relativism, assisting students in drawing from their experience in validating ethical principles, and developing an understanding of the importance of an organized, problem-solving framework for approaching ethical dilemmas. The resulting framework can then be related to the process of rational scientific analysis experienced in other courses.

Practice Ethics in Community Pharmacy. Susan E. Sharpe, *Royal Pharmaceutical Society of Great Britain, U.K.* There is a need for an accurate definition of ethics. Points of confusion include: competition, promotion and politics and where and how do these legitimately influence development of ethical standards. There are core ethical issues in community pharmacy practice such as: 1. competence of pharmacist; 2. benefit for consumer; 3. relevance to profession; and 4. benefit for State/payer? These ethical rules may be tested in the courts. A case history may serve as an example. The API case is an example of a challenge presented to the European Court of the RPSGB Code of Ethics on the prohibition on substitution. The ethical rule states that: A pharmacist should not substitute (except with the approval of the prescriber... or in an emergency) any other product for a specifically named product, even if he believes that the therapeutic effect and quality of the other product is identical... A pharmacist should not deviate from the prescriber's instructions when dispensing a prescription except where necessary to protect the patient... In 1989, ten of twelve EC member states had similar rules. The UK's arguments and the reasoning of the Court's decision in support of the RPSG was based on other cases in which ethical controls have been challenged in the courts. Increasing demands on public health care; drives for cost containment; economic pressures on the community pharmacist from decreasing profit margins and pressure on prescribers and pharmacists to supply cheaper remedies; increasing reliance on self medication; increasing use of the pharmacist's knowledge; and judgement have affected the impact of ethics in pharmacy. This case resulted in the formulation of ethical principles to

meet these developments.

Protection of Human Research Subjects: An European Example.

P.A. Sado, *Pr., President - 4th Symposium of Consulting Committee for Protection of People in Biomedical Research's (CCPPRB) National Conference, 3 Av. Pr. L. Bernard -35000, Rennes, France.* The first French bioethical law, enacted in late 1988, has been applied for the last five years. Its initial objectives were the regularization and moralization of clinical trials promoted by the pharmaceutical companies in France. It needed approximately two years of discussions for modifications of the law before its application in 1990. Step by step its scope has been enlarged, from the clinical trials of new drugs to biomedical research, and recently, human behavioral research. Each project of research has to be approved by one of the independent regional committees (CCPPRB/n = 53) before a study is allowed to start. The advice of the committee is based on: science, law, and ethics. Pharmacists are concerned by the law on the following points: storage and dispensing of the drugs concerned by clinical trials (Hospital membership, as a specialist of pharmaceutical problems, on the committees (minimum: two of twenty-four members/Hospital and Community pharmacists) participation to the organization, development and survey of clinical trials (Industry and Public Health Administration/Students and Industry pharmacists) education in order to acquire professional competency (Faculties—Students) The author presented the original law (Law HURIET-SERUSCLAT) and the CCPPRB (organization and functioning) the evolution of the fields of application the limits and/or inconveniences of the law.

Health Care Ethics in Perspective. Tore Nilstun, *Department of Medical Ethics, Lund University, Lund, Sweden.* What should and what should not be expected of health care ethics? The proposal put forward in this address is that the main task of health care ethics is to provide the relevant value premises, but not balance them when in conflict. Four value premises are presented in the address. These are the principles of efficiency, equality, liberty and solidarity. Any decision inconsistent with one of these principles can only be justified by pointing to the overriding application of one or more of the others. However, the principles do not by themselves provide solutions to ethical conflicts, *i. e.*, situations where there are, at the same time, a moral obligation to adopt two conflicting alternatives. In my opinion the task of solving such conflicts is not within the competence of health care ethicists. They have no mandate to do this job.

Model of a Quality System for the Faculty of Chemistry, UNAM.

Carmen Giral Barnes and Alpizar Ramos, *Secretaria Académica, Facultad de Química, Edificio A P.B., Circuito Escolar, Delegación Coyoacán, C.P. 04510, Mexico, D.F.* **Objective:** To establish the process to support the integral development and improvement of academics, students, workers and all personnel who participate in the activities of the Faculty. In Mexico, like in all countries, the enhancement of human resources through education has become a first national priority. In the last 5 years the specialists have recommended reforms. The problems of education in Mexico are not only related to the educational system, the failures can be explained in big part by the structure and management of our schools. Most of our institutions have been working with the same model for the last century, therefore we need urgently a reengineering, because economic growth, competitiveness and living standards directly correlate with the quality of our education. We need cultural changes from the top to modify the authoritarian management and bureaucratic practices that have been a part of our educational system for many years. With this in mind and also considering all the changes experimented in our country toward globalization, we decided to establish Total Quality in our Faculty. Total Quality is a process of continuous improvement, pursuing integral development and improvement of our creativity, abilities, skills and knowledge. For many years Total Quality was only applied to productive organizations. However in 1985, for the first time the system was applied in institutions of higher education in the USA. In Mexico, and in particular within our Faculty, we started to work in this process some years ago. Our program involves the following steps: 1. Establishment of the Objectives: The Total Quality System; 2. Internal Audits; 3. Development of Training Programs; 4. Development of a Central Documentation System: SOP's; 5. Development Program of Customer Satisfaction; 6. Evaluation: External Audit; 7. Feedback; and 8. National Certification. **Conclusions:** The first results of our internal evaluation demonstrates: Heavy load of information and work for students; Deformation of the relation knowledge/skills for the students; Low terminal efficiency; Low relation university/external environment (customer satisfaction); and Necessity to define standards.

A Postgraduate Diploma in Community Pharmacy: Three Years Experience. Claire Anderson, *Department of Pharmacy, King's College London, London SW36LX, U.K.* This part-time day release course was the first of its kind in Britain when it began in 1992. The course design was based on the results of training a needs analysis for community pharmacists in North West Thames Regional Health Authority. The aims of the course

are: to provide a sound academic basis for the practice of pharmacy in the community; to meet the training needs of community pharmacists who are changing their role: to enable them to work as an integral and effective member of the primary health care team: and to produce research and encourage development in community pharmacy practice. Graduates of the course have gone forward in many ways, and are at the forefront of community pharmacy, helping the change process to take place and integrating pharmacists into the primary health care team. Some have stayed in community pharmacy and developing their role, two have formed a partnership and opened a new pharmacy and are practicing in a new and different way, others have become FHSa advisers or facilitators having a wider influence on pharmacy practice and on the primary health care team. Some have become audit facilitators. One has become a lecturer in pharmacy practice, others give lectures and some have presented their research at international and national conferences. Some have embarked on further research for PhDs. They have become national and local committee members. Other universities and a major pharmacy employer have started similar courses; there is also interest from universities outside the UK. A MSc is now also available; it provides opportunities for work with General practitioners and a substantial research project. The course has equipped pharmacists to become agents of change. If community pharmacists are to become established members of the primary health care team, training interventions such as this course is essential.

Pharmacy Student Self-Assessment Portfolios for Clinical Pharmacy Clerkship Competencies.

Cynthia L. Raehl, C.A. Bond, Kathy Marty and Michael Pitterle, *University of Wisconsin-Madison, School of Pharmacy, 425 N. Charter St., Madison, WI 53706 U.S.A.* The purpose of this longitudinal project is to develop and implement a portfolio model for pharmacy student self-assessment of professional practice competencies. This 5 phase project began in 1991. Phase I was development of 7 core competencies (with 36 subcompetencies suitable for all clerkships regardless of practice setting) using Bloom's Taxonomy of Educational Objectives. All competencies target complex tasks necessary for contemporary pharmacy practice. Phase II familiarized instructors with Bloom's taxonomy and self-assessment portfolios. In Phase III, the portfolio was incorporated into PharmD advanced elective clerkships and the advising process. Phase IV extends portfolio use into required PharmD and BS clerkships. Phase V continues self-assessment portfolio use during the state mandated internship experience. This poster focuses on Phase III and IV. Students complete a baseline self-assessment of practice competencies using a numeric scale corresponding to Bloom's taxonomy; self-assessment is repeated at the completion of each clerkship rotation. The clerkship instructors complete an independent assessment of the student's competence: students and instructors compare their assessments and discuss discrepancies, student maturation, and professional development. The self-assessment tool is deliberately separated entirely from the grading process to emphasize students' responsibility to critically evaluate their own skills. Data for 22 PharmD students and 120 BS students is presented analyzing: congruence of student and instructor ratings (paired T-test), maturation effect (repeated measures ANOVA), terminal level of competency completion, and competency achievement interaction with gender, GPA, elective clerkship completion and prior work experience (ANCOVA). The portfolio competencies were incorporated into a clerkship competency scale analyzed for: internal consistency (coefficient alpha).

Development of a Postgraduate Community Pharmacy Residency Training Program. Dick R. Gourley, Roger L. Davis, James C. Eoff, David K. Solomon and Rex Brown, *College of Pharmacy, The University of Tennessee, 847 Monroe, Memphis, TN, U.S.A.* The primary objective of this presentation is to describe the development of a postgraduate community pharmacy residency program. Community pharmacy has struggled with the development of postgraduate training programs over the past several decades. However, over the past 5 years The University of Tennessee College of Pharmacy has made a commitment to the development of postgraduate community pharmacy residency programs. The promotion and expansion of sites for the community pharmacy residency program is the responsibility of Dr. Roger Davis, Assistant Dean of the College of Pharmacy, and Vice-Chairman of the Department of Clinical Pharmacy. The community pharmacy residencies are designed to provide advanced education and training for pharmacists who plan to participate in comprehensive, community based settings. On July 1, 1994, there were 6 sites available for the community pharmacy residency program. The current residency sites are Marcrom's Pharmacy in Manchester, Reeves-Powell Pharmacy in Murfreesboro, Clinton Drug Store in Clinton, Wilson's Pharmacy in Johnson City, Kroger Pharmacy in Nashville, and City Drug Company in Huntingdon, Tennessee. Recruitment of residents is on a regional basis, including all colleges of pharmacy in the Southeast as well as national pharmacy associations and other contacts on a national basis. The community pharmacy residency programs have a required research

component which focuses on the development of pharmaceutical care and measurement of outcomes of pharmaceutical care in community pharmacy. The College of Pharmacy has a goal of establishing 15 community pharmacy residencies by 1997. There are currently 8 sites that have been funded for community pharmacy residency programs in 1995-96. Each resident requires a total of \$30,000 in funding which includes the stipend for the one-year program, fringe benefits, research, and travel funds. The community pharmacist preceptor must provide 25% of the resident funding. In order to develop pharmaceutical care to an appropriate level in community pharmacy, community pharmacy residents are essential to this endeavor.

Re-Engineering the Continuing Education Programs of the College of Pharmacy in Response to Health Care Reform. Dick R. Gourley, Glen Farr, Roger Davis and James C. Eoff, *College of Pharmacy, The University of Tennessee, 847 Monroe, Memphis, TN, U.S.A.* The University of Tennessee College of Pharmacy is the only college of pharmacy in the State of Tennessee. As such, the College has the responsibility of providing continuing pharmaceutical education for pharmacy practitioners in the State of Tennessee. Historically, the College has provided a wide range of CE, offering the opportunity for practitioners in any part of Tennessee to obtain 15 hours of continuing pharmaceutical education per year. Courses have included correspondence, video and live continuing education programs. The live continuing education programs have focused on topics such as therapeutic frontiers, updates on specific therapeutic entities, management symposiums and other traditionally-based continuing education programs. With the change in health care, it has become apparent that pharmacy practitioners must possess a different set of skills in order to meet the demands of managed patient care. In order to meet those needs, The University of Tennessee College of Pharmacy, in concert with the Tennessee Pharmacists Association, the Tennessee Board of Pharmacy and RxCare of Tennessee, has begun redesigning its continuing education programs. CE programs are being designed to offer certificate programs in specific areas of practice to provide pharmacy practitioners with new skill sets in the areas of disease management, i.e., diabetes, asthma, etc. The College, working in concert with the pharmaceutical industry, the Tennessee Pharmacists Association and RxCare has developed a diabetic pharmacist program, an asthma pharmacist program and an educational program that will prepare practitioners to become part of the RxCare Preferred network. This paper describes the development of the certificate programs and the changes that are expected over the next five years in continuing pharmacy education to allow practitioners to meet the challenging demands of pharmacy in a reformed health care system.

Postgraduate Specializations in Pharmacy. Gordana Mihajlovic and M. Romic, *Blood Transfusion Institute, Belgrade, K. Bogdanovic, Clinical Hospital, Zemun, S. Nikolic-Vujadinovic, Sanitas, Cetinje. Federal Institute of Public Health, Belgrade, Yugoslavia.* Study at the Faculty of Pharmacy University of Belgrade (Yugoslavia) until recently lasted four and now five years, plus one year of obligatory internship. Further career offers several posts: in chemist's shops (dealing only with drugs and medical devices), in various laboratories, such as of clinical chemistry or in pharmaceutical industry, while some decide to specialize in one of pharmaceutical disciplines. Specializations, which include education and practical work, are organized at the postgraduate level and are performed in highly professional institutions belonging to the University. They are in the frame of health service and last three years, involving: clinical chemistry, pharmaceutical technology, toxicological chemistry, sanitary chemistry, drug control, pharmacoinformatics, social medicine and cosmetology. All successful candidates are subjected to the final exam consisting of review paper dealing with one of the fields of specialization and oral exam. Their high level of education thus very much contribute to competent and modern practice of pharmaceutical disciplines in our country. The number of specialists in FR Yugoslavia at the end of 1993 was following: clinical chemistry -189, pharmaceutical technology - 69, toxicological chemistry - 18, sanitary chemistry -16, drug control -19, pharmacoinformatics - 53, and social medicine - 6.

The Development and Assessment of Interpersonal Skills. J.A. Rees, I. Crowther, *The Boots Company, Nottingham*, and J. II. Collett, *Department of Pharmacy, University of Manchester, Manchester M13 9PL*. Interpersonal skills include the ability to interact with others and work as part of a team. The development of such skills are important if students are to be equipped to perform adequately as a professional person in the future. An integral part of interpersonal skills is the ability to communicate. One approach to the teaching of interpersonal skills, by way of developing communication skills, is to involve students in structured experiential learning in a pharmacy work placement, i.e., work based learning. The provision for the assessment of interpersonal skills during the work placement with concomitant feedback to the students is an essential component if the development of such skills is to be accomplished. The development

and evaluation of structured work based learning for pharmacy students in a standardized community work placement has been reported and shown to have many benefits. Further development has included the formative and summative assessments of the individual students by the pharmacists in the work place. These assessments of interpersonal skills have been formalized with the development of a structured assessment document which required a 'grading' of the student at each assessment. This procedure allowed the progress of each student to be monitored throughout the time period of the work placement. Each student was provided with appropriate feedback after each assessment session in order that they were aware of, and could improve upon, the weaker areas in their interpersonal skills. A detailed analysis of the assessment documents and the progress of the students demonstrated that the technique was capable of developing interpersonal skills. The approach was acceptable to both the students and the assessing pharmacists.

A Collaborative Model for the Teaching of Ethics. Mary Anne Ciappara, M. A. Sant Fournier, E. Agius, G. Grima and Ingloft A. Serracino, *Department of Pharmacy, University of Malta*. Following the introduction of Colloquia in Pharmacy Ethics by the Department of Pharmacy in collaboration with the Faculty of Theology and Malta Chamber of Pharmacists in 1992, a multidisciplinary two day seminar was organized for final year pharmacy students in 1993. The objectives were for students to become aware of the ethical dimension of the various activities in the area of pharmacy practice. The seminar incorporated plenary sessions, workshops and colloquia. The multidisciplinary panels invariably included an ethicist and pharmacists practitioners. The seminar was evaluated by means of a questionnaire which included a case scenario. 57(79%; n=71) filled in the questionnaire. Through this seminar students acquired a good bases to professional ethics (72%); awareness of professional obligations (84%) and responsibilities (72%). Although there was increased awareness of the ethical issues in pharmacy practice (82%) and complexities involved in ethical decision making (79%) only 35% indicated that they can resolve them. These results are reflected in the responses given to the case scenario whereby 61 % were able to clearly identify all the ethical issues and only 39% offered solutions to solve the problem and validated their decision. Although the seminar was an improvement on the first colloquia, it identified the need for ethics content to be integrated across the curriculum. A model of 3 credits over a period of 3 years with an introductory seminar in the first year has been developed by the Department of Pharmacy and the Faculty of Theology and is being implemented from this year by the Department of Pharmacy.

Use Video in Continuing Education of Pharmacists in Primary Health Care. M. Jadrijevi-MladarTaka, *Department of Pharmaceutical Chemistry, Faculty of Pharmacy and Biochemistry, University of Zagreb, Zagreb, Croatia*. The number of information in medicine permanently increases. It is therefore very difficult for someone who deals with primary health care (PHC) to follow and to choose information what one needs and what is really important. The other problem is that many information are published in foreign languages and in publications which are not easily available even in larger cities. A new system of continuing education focusing on PHC according to laws in Croatia includes all three of the following services: pharmaceutical, medical and stomatological. The major goal of the new educational system was an improvement of communications between health care units for PHC. The system does not follow a traditional school model. Videotapes which deal with different titles (i.e., Antibiotics in medicinal practice, Can we without boric acid?, Interaction of drugs, Insulin - What is This?, Diabetic nutrition, First Aid, Poisonous gas, etc.) were used in continuing education of pharmacists in the following manner: i) video as an independent educational unit, ii) video as an illustration, iii) video as a stimulus for group discussion, and iv) video as assistant in training of skills. The results of this type of education were: i) the active interest of participants; ii) the specific interest of the users more oriented toward contents than form; iii) volunteered participation of the large number of health practitioners as the authors of educational materials; iv) problem solving methodology adequate to expectations of participants, accepted as interesting and stimulating educational tool. All consumers agreed that education by using video has advantages over the classical educational methods. The main disadvantage was the possibility of passive following items and difficulties in activating the audience to take part in it.

Pharmacy Ethics in Teaching and Research. N.N. Rahman, S.Parveen, *Department of Pharmacy, University of Dhaka, Dhaka 1000, Bangladesh* and A. Rahman, *ACT Pharmaceuticals, Dhaka, Bangladesh*. Ethics is an inherent characteristic of professional behavior. It plays a crucial role in pharmacy profession. Therefore it is imperative to teach the ethics to those who enter into pharmacy profession. Law may be enforced by the state while ethics is a moral binding. Teaching and practicing ethics in the developing countries is a challenging job because of low level of education and poor socioeconomic conditions. People may compromise ethics to save

themselves from staggering poverty and hunger. Pharmacy ethics is taught at the undergraduate level in the universities and medical colleges of Bangladesh. Pharmacy Council and Directorate of Drug Administration of the Government of People's Republic of Bangladesh formulated code of ethics for the pharmacists. These organizations supervise the practice of pharmacy ethic; in pharmaceutical industries, drug shops and hospitals. They organize short training course and workshops to update the knowledge of ethics. Profit motive may drive manufacturers to produce substandard drugs by using cheaper raw materials which causes suffering to patients. Lack of ethical knowledge is mainly responsible for tinkering with drugs in the developing countries. Pharmacy ethics teaches us to place the patient's interest above pecuniary gain.

Adapting Pharmacy Education to Meet the Changing Needs of Pharmacy Practice. Sidney J. Stohs, *School of Pharmacy and Allied Health Professions, Creighton University, 2500 California Plaza, Omaha, NE, U.S.A.* Managed health care and health care reform are resulting in profound changes in the practice of pharmacy. The impact of factors associated with cost containment as the increased emphasis on ambulatory care and outpatient surgery clinics, the increased role of both private and federal third party payors, discriminatory pricing by drug companies, pharmacy automation and computerization, and the use of pharmacy technicians have resulted in significant changes in pharmacy practice. Furthermore, prescribing by pharmacists under protocol as well as reimbursement for cognitive services are associated with the changing complexion of pharmacy practice. In order to meet the rapidly changing needs of pharmacists, the curricula within schools/colleges of pharmacy must adapt to the changing health care environment. Changes in curricula over the past 25 years will be reviewed, and projected curricular changes will be presented. These curricular changes will reflect the decrease in the number of hospitalized patients with a shift to intermediate and ambulatory care settings, the decrease in compounding functions of pharmacists, the emphasis on seamless health care, the increased role of pharmacists as drug information specialists and therapeutic consultants, and managed health care and health care economics. Greater emphasis in pharmacy education is being placed on patient counseling, drug information management, patient physical assessment, pathophysiology, therapeutics, ethics, communication skills, and health care systems and economics with less emphasis on physicochemical and analytical laboratory-based courses. These changes are essential to meet the evolving roles of pharmacists. In order to meet the changing needs associated with health care delivery and in order to remain an integral component of the health care delivery system, pharmacists must rapidly evolve from a profession known for providing a product to a profession known for providing pharmaceutical care, and become primary health care providers.

Short-term Recall of a Continuing Medical Education Journal: Comparative Intervention Study. D. Broclain, P. Mura, D. Nivet-Carré and G. Bardelay, *La revue Prescrire, 83 bd Voltaire, 75011 Paris.* Aim: To measure the influence of participation in readers' tests contained in a continuing medical education journal on short-term recall of information applicable to general practice. **Materials and Methods:** We carried out an intervention study in a population of general practitioners belonging to an association for continuing medical education (Collage des Hautes Etudes de MCdecine GCnCrAle de Bretagne, CHEMG). The study consisted of four phases: an assessment of participants' baseline knowledge (pretest); publication of an issue of *La revue Prescrire* containing the answers to pretest interspersed throughout the various articles (first intervention); publication of a readers' Test concerning the information contained in the previous issue

(second intervention); final assessment based on the same series of questions (posttest). 363 CHEMG members were sent a letter inviting them to accept a telephone interview on acquisition of knowledge through reading. 91 doctors accepted both the pre-test and posttest assessments. They were distributed as follows: 25 nonsubscribers to *La revue Prescrire* (group 1); 42 subscribers not participating in the readers' Test (group 2); and 24 subscribers participating in the readers' Test (group 3). Nine true/false questions were put over the phone by two sociologists who were unaware of the correct answers and to which group the subjects belonged. Correct and incorrect answers were given values of 1 and 0, respectively, permitting a global score to be calculated. The variable used to determine whether knowledge progressed in each group was the difference between the posttest and baseline scores ($A = S2-S1$). A r-paired test was used to compare mean values, P values of 0.05 or less being considered significant. A statistical analysis of each question was also carried out. **Results:** The baseline scores (S1) did not differ significantly between groups 2 and 3. The difference in the posttest mean scores (S2) between groups 2 and 3 was highly significant ($P=0.0001$). In contrast, the baseline scores in group 1 were significantly lower than those in groups 2 ($P<0.04$) and 3 ($P<0.02$). Scores in group 1 (non-subscribers) increased significantly ($S1=4.2$, $S2=5.1$; $A=+0.9$; $P=0.02$), but the progression was accounted for by answers to only one of the nine questions (on side effects). The posttest mean score in group 1 was equivalent to the mean baseline score in group 2. Scores in group 2 (subscribers not participating in the readers' tests) did not vary significantly during the study ($S1=5.1$, $S2=4.6$; $A=-0.5$). In contrast, scores in group 3 (subscribers participating in the readers' tests) increased significantly ($S1=5.4$, $S2=6.8$; $A=+1.4$; $P<0.002$). **Conclusion:** Short-term recall improved significantly among subscribers to *La revue Prescrire* participating in Readers' Tests, but not among nonparticipating subscribers, suggesting that regular participation in readers' Tests improves the absorption and recall of information contained in a continuing medical education journal.

Continuing Pharmaceutical Education Course as a Teleconference. Annika Andersson, Leila Haukkala and John Lilia, *The Finnish Centre for Continuing Pharmaceutical Education, Pieni Roobertinkatu 14 C, FIN-00120 Helsinki, Finland.* Since 1989, the University of Akademi and the Finnish Centre for Continuing Pharmaceutical Education have yearly arranged a teleconference course. The language of the course is Swedish, which is the other official language in Finland. Six percent of the population in Finland has Swedish as mother tongue and they live on the coast. Teleconference is the only way to arrange a national continuing education course for the very small group of Swedish speaking pharmacists living far away from each other. The teleconference course is held in three or four studios in towns on the coast. The studios are connected so that the participants and the lecturers can see the person speaking and discuss with each other. The lecturer can use slides, videos and transparencies, which are seen in every studio. The leader of the course activates the participants with discussions and group works on patient cases. Experiences from the teleconference courses are mainly positive. The high expenses of the teleconference are however a disadvantage. Fortunately, the National Agency for Medicines is interested in these kind of new courses and has supported all of them. That's why the course fees have been less expensive. The teleconference technique is developing all the time and there are less and less technical disturbances. A great advantage of the course is that every participant has quite a short distance to the course place. The participants appreciate courses spoken in their own language and they take part in the course actively every year.