

## Pain Relief via Education: First Step towards Improving Pain Management in Developing Countries

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### Abstract

**Objective:** For the progress and endurance of the nation, appropriate healthcare and education systems are essential. In developing countries like Pakistan, a large number of patients suffering from painful conditions do not have access to pain treatment due to lack of Pain services. The aim of the project was to devise courses surrounding basic education related to pain management.

**Methods:** A group of 6 anaesthesia faculty members of Aga Khan University was formulated to design the courses to be conducted in the leading teaching hospitals of Pakistan. There were four educational courses, of 15 hours contact time and were delivered over a period of 1 year. The participants were nurses, general practitioners, anaesthesia trainees and anaesthesia consultants from eight leading teaching hospitals.

**Results:** Towards the end of Course I, the participants started pain assessment in their respective hospitals. After completion of Course II, 3 teaching hospitals started formal acute pain services while remaining are in the process of completion of checklist to start the service. The Course III supported the participants to acquire independent privileges to perform procedure and yet 3 are under consideration. Lastly Course IV, where participants were encouraged to lay down the criteria of referring patients to teaching hospitals and propagate this to their colleagues.

**Conclusion:** The courses under the project, is an initial step in changing the practices and expectations. Moreover, it is expected that the current scenario can be improved and number of patients with unnecessary suffering will reduce.

**Keywords:** Pain Relief; Educational courses; Developing countries

### Introduction

Health and education are two major systems struggling to establish and strengthen in Pakistan, as is the case in many developing countries of the world. Currently, the fraction of gross domestic product (GDP) being spent on health care is much less than the indicators set by World Health Organization [1,2]. As the development of efficient healthcare and education systems is vital for the progress and survival of a nation, the country must make ongoing efforts to reach and maintain the minimal standards of human well-being and development.

Aga Khan University (AKU) is the first private medical university and school of nursing in Pakistan and through ongoing efforts, endeavors to bridge the widening gaps in the health care and education systems within the country. Department of Anaesthesiology at AKU is a pioneer in setting up formal acute and chronic pain services in the face of an overwhelming evidence of burden of chronic pain and inadequate postoperative pain management. To tackle the problem at a larger scale, the pain team planned to educate, teach and motivate the health care teams (doctors and nurses) of other hospitals of the region into initiating and establishing dedicated pain services in their own institutions. This purpose though noble, was difficult to achieve without sufficient financial support.

A grant was successfully procured from the International Association for the Study of Pain (IASP) by the pain faculty. This grant helped in organizing various educational courses in the province of Sindh, one of the five provinces of Pakistan. Specifically, the aim of this project was to design and deliver basic educational courses of pain management for health care workers of tertiary care health centers of Sindh and encourage and support initiation of formal acute and chronic pain services in these centres.

### Methods

Four educational courses, of 15 hours contact time each, were designed and delivered over a period of 1 year. Exemption was granted by the Ethics Review Committee of Aga Khan University.

**Design of Educational Courses:** In order to devise the course design, a central group was formed comprising of 6 anaesthesia faculty members responsible for the provision of acute and chronic pain services at the Aga Khan University. The group had regular meetings to determine the specific objectives of the educational project and topics that should be included in the curriculum for achieving these objectives. Experts were invited from various other specialties; including nursing services, radiology, oncology, neurology, surgery, physical rehabilitation and medical education. All the participants were involved in delivering lectures and tutorials to undergraduate and post-graduate medical and nursing students within the university.

The central group also considered the available evidence from the published literature in defining the curriculum content. Teaching methodologies included didactic lectures, small group tutorials, problem based interactive sessions using case scenarios, hands on workshops using demonstration on manikins, videos and simulated patients. A uniform evaluation method comprising of pre and post MCQ tests was developed for each course. In addition, a structured form was developed to obtain formal written feedback from the participants. At the end of each course, an informal session was arranged with the participants to seek verbal feedback.

After deliberations in these meetings 4 courses were designed, with duration of 15 hours each. For the sake of convenience, director of each course was appointed from the central group, who then had the mandate to nominate a course coordinator, preferably from within the department of Anaesthesiology. The course directors were responsible for enrolling participants according to the defined criteria, making pre and post-test MCQs, allocating relevant topics to the faculty, and ensuring the delivery of the curriculum according to course objectives. At the end of the course, the course directors submitted a detailed report to the primary author.

### Conduct of courses

The targeted population included nurses, general practitioners, anaesthesia trainees and consultants. Eight leading teaching institutes in the province of Sindh were identified, 4 from the metropolis of Karachi and 4 from less developed areas where formal pain set-ups are non-existent despite a prevalent need. Chairs of anaesthesia departments in these 8 institutes were contacted via phone and requested to identify the interested nurses working with post-operative patients, anaesthesia trainees and consultants interested in acute and chronic pain management. Final selection was done from the recommended candidates according to the criteria for enrollment in each course. Participants were invited to join the courses with an eventual aim of developing formal acute and chronic pain services in their hospitals. The course details are as follows:

### Course I: Pain Management for Nurses

Pain Management for Nurses. First of the four courses was designed for nurses involved in the management of patients with acute and chronic pain and was conducted on January 27-29, 2012 at ISRA University, Hyderabad. The heads of Anaesthesiology departments of four tertiary care teaching hospitals in Hyderabad, Jamshoro and Nawabshah were requested to nominate 5 to 7 experienced registered nurses from each center to attend the course. Forty-two nurses from four different hospitals attended the course (Table 1). During the three days of the course, 15 hours of contact sessions were covered.

Objectives of the course were, that by the end of the course, the participants will be able to

- Develop an understanding of anatomy, physiology and pharmacology of pain.
- Describe the care of patients receiving epidural analgesia, its complications and the steps taken for their management.
- Describe the care of patients receiving intravenous patient controlled analgesia (PCA), its complications, and their management.
- Assess the degree of pain using various methods of pain assessment.

These objectives were delivered by teaching selected topics using varied methodology

Sr. No	Topics	Methodology
1	Anatomy and Physiology of Pain	Lecture
2	Care of Patient receiving epidural analgesia	Tutorial
3	Modalities of Acute Pain Management	Interactive session
4	Complications of Epidural analgesia and their Management	Tutorial and Movie
5	History taking and assessment of chronic pain patient	Interactive session
6	Pharmacology	Lecture
7	Care of Patients receiving PCA	Interactive session
8	Opioids information, complication	Tutorial
9	PCA Pumps	Hands-on workshop
10	Operating room preparation for various nerve blocks used for chronic pain	Interactive session
11	Epidural Analgesia	Hands-on workshop
12	WHO Check List	Tutorial
13	Dealing with Patients suffering from pain	Interactive session
14	Assessment of pain	Case scenario based discussion

**Table 1:** Course I: Pain management for nurses

### Course II: Establishment of Acute Pain Service (APS) for Trained Anesthesiologists

The second course was conducted on March 5-6, 2012 in Karachi for anesthesiologists with 4 to 5 years of experience in anesthesiology. The overall objective of the course was to help establish formal acute pain management services in hospitals in Karachi and nearby cities in the province of Sindh. Twenty-five anesthesiologists from 9 different hospitals attended the course. Eleven were from 3 hospitals from Hyderabad, Jamshoro, and Nawabshah, while 14 were from 6 hospitals of Karachi. During 2 days, 15 contact hours sessions were covered in the course.

Objectives of the course were that by the end of the course, the participants will be able to;

- Display awareness of the problems/obstacles in initiating an APS and formulate strategies to overcome these.
- Enlist the drug formulary, human and financial resources required for the service
- Devise strategies to evaluate, receive feedback and conduct patient satisfaction surveys.
- Enumerate various modalities used for acute pain assessment and management.
- Describe the management of patients receiving epidural analgesia and intravenous patient controlled analgesia (PCA).

These objectives were delivered by teaching selected topics using different methodology (Table 2)

Sr. No	Topics	Methodology
1	Awareness about the need of establishing APS, possible hurdles/problems and strategies to overcome them	Interactive/ storming session Brain
2	Logistic requirements including human resources, equipment, drug formulary etc.	Tutorial
3	Development of a concrete structure outline for APS	Group work
4	Working with what you have	Interactive session
5	Epidural analgesia, its complications and their management	Workshop using manikins, videos and simulated patients
6	Multimodal Analgesia	Tutorial
7	Methods of pain assessment	- Tutorial/ Case scenario based discussion
8	PCA: complications and management	Hands on workshop
9	Parenteral Narcotics	Tutorial
10	Development of evaluation strategies, feedback, and satisfaction surveys for acute pain service	Group work

**Table 2:** Course II: Establishment of Acute Pain Service (APS) for trained Anesthesiologists

Sr. No	Topic	Teaching Methodology
1	Cancer pain, indications of procedures and patients' selection	Case Scenarios based interactive discussion
2	Basic anatomical considerations with different approaches	Lecture/video
3	Interpretation of X-rays, MRI and orientation of fluoroscopy and other relevant imaging	Hands-on workshop
4	Neurolytic agents	Tutorial
5	Overall management of Neurolytic procedure , including complications	Interactive session
6	Informed consent and breaking bad news	Brief introduction and Group work
7	Intra-thecal drug delivery system, indications and patient selection	Tutorial
8	Sono-anatomy of spine/other cancer related procedures	Hands-on workshop
9	Spinal narcotics, complication and management	Tutorial
10	Making guidelines for common cancer pain and patient information brochure development	Group work
11	Palliative care and understanding of symptoms management	Interactive session

**Table 3:** Course III: Common Interventions of Cancer Pain for Practicing Pain Physicians

### Course IV: Pain Management for General Practitioners

In Pakistan, there is one general practitioner for every fifteen hundred patients. Majority of them have no formal training of managing pain. The fourth and the last course were conducted on May 30-31, 2012 in Karachi for general practitioners as they are the first person to be contacted when patients are suffering from pain. The

### Course III: Common Interventions of Cancer Pain for Practicing Pain Physicians

The third course was conducted on May 8-9, 2012 in Karachi. The reason to plan this course was an overwhelming need to learn interventional cancer-pain management techniques as assessed by written feedbacks from the participants of the cancer pain symposium, held at Aga Khan University, and also through an informal inquiry from senior oncologists and anesthesiologists of major teaching hospitals. The overall objective of this course was to impart knowledge of cancer pain management, and teach basic skills of common interventional techniques to practicing pain physicians and anesthesiologists of targeted institutions from around the province of Sindh. The specific objectives were; that at the end of this course the participants will be able to:

- Select and assess cancer patients for interventional procedures
- Interpret relevant X-rays, MRI scans and live images under fluoroscopy
- Practice various approaches of the interventional procedures
- Diagnose complications of different interventions and describe their management
- Formulate institutional guidelines and devise informed consent templates for different procedures

These objectives were delivered by teaching selected topics using varied methodologies (Table 3).

specific objectives were that at the end of this course the participants will be able to:

- Review the basic anatomy, physiology and pharmacology of pain
- Describe different varieties of acute and chronic pain and their assessment methodologies
- Apply the basic principles of pain management

- Recognize the patients requiring referrals to a pain consultant

These objectives were delivered by teaching selected topics using different methodology (Table 4)

Sr. No	Topic	Teaching Modalities
1	Introduction of course and understanding of learning objectives	Brain storming
2	Basic anatomy and physiology of pain	Tutorial
3	Basic pharmacology of pain Need to add Anti-convulsants and anti-depression in pain management	Tutorial
4	Different types of pain and chronic pain conditions	Tutorial
5	History taking and preliminary examination of patient suffering from pain	Group work
6	Neurological examination of a pain patient	Tutorials, live demonstration
7	Neck Pain/Shoulder Pain	Case based interactive learning
8	Back Pain/Knee pain	Case based interactive learning
9	Abdominal/pelvic Pain	Case based interactive learning
10	Headache/Facial pain Generalized body ache Myofascial Pain	Case based interactive learning
11	Practical guidelines for common painful conditions	Tutorials on available guidelines
12	Acute pain Trauma pain Post-surgical Pain	Tutorial
13	Interventions in common painful conditions	Live demonstrations
14	Chronic pain	Interactive session using case scenarios

**Table 4:** Course IV: Pain Management for General Practitioners

Participants of all 4 courses received bags containing course material; Postoperative Pain Management – Good Clinical Practice Guidelines: General Recommendations and Principles for Successful Pain Management, produced in consultation with the European Society of Regional Anaesthesia and Pain Therapy [1], WHO Analgesic Ladder [2], WHO Surgical Safety Checklist [2], Numeric rating and Wong Baker Faces pain scale [1], Epidural and PCA prescription and monitoring forms being used in Aga Khan University Hospital, course evaluation form and the course program. The principal focus and target practitioners of each course are summarized in Table 5.

A pre-test comprising of 20 true/false multiple choice questions was administered at the beginning of each course. It was meant for self-assessment of the participants. The post-test consisted of the same

questions so that the participants could judge the improvement in their knowledge after attending the course. A structured form was used to obtain formal feedback from the participants.

## Results

After completion of Course-I, all participants were posted in surgical wards to initiate proper pain assessment and nurses were encouraged to carry out regular pain assessment for all patients with each record of vital signs. Numeric rating scale was provided to all participants to start pain assessment in post-operative period in their respective hospitals.

In Course-II, an informal group discussion ensued where a road-map was chalked out by the representatives of each institute in collaboration with their colleagues for establishing acute pain management services in their respective hospitals. The organizers promised to send reminders after each milestone was reached/crossed. Participants were encouraged to collect data from the start of the service, conducted regular audits and end-user satisfaction surveys. For the purpose, sample formats were also developed through group work. To date, 3 out of 8 teaching hospitals have started formal acute pain services while remaining are in the process of completion of checklist to start the service.

In Course-III, fluoroscopy guided celiac plexus block, epidural steroid injections, and other procedures were demonstrated live in operating room and videos were given to all the participants. A road-map was devised by representatives of each institute in collaboration with 3 pain faculty members for starting interventional procedures for cancer pain in their respective hospitals. It was decided to provide support until the participants acquire independent privileges. To date none of the faculty achieved independent privileges, however 3 are under consideration.

At the end of Course-IV, participants were encouraged to lay down the criteria of referring patients to teaching hospitals and disseminate this to their colleagues. In addition, they were added to the mailing list for pain related CME activities. Educational brochures of common pain syndromes and common analgesics and co analgesics used for pain were also given to the participants.

Course Titles	Target Practitioners	Focus
Pain Management	Nurses	Developing pain score (VAS) in participant hospitals
Establishment of Acute Pain Services (APS)	Anesthesiologists	Formal initiation of APMS
Common Interventions of Cancer Pain	Pain Physicians	Multidisciplinary approach to cancer treatment
Pain Management	General Practitioners	Understanding pain management principals

**Table 5:** Target practitioners and principal focus of each course

## Discussion

Relief from pain and suffering is a basic human right [1,2]. This right cannot be ignored even within resource-poor circumstances. Ground realities of developing world place pain-relief at a lower rung of priority. In Pakistan, there are 4 or 5 health care centres, providing

formal chronic pain service and one where formal acute pain service exists hence under-assessment and under-treatment of pain is common [1]. Reasons of sub-optimal pain management in Pakistani health care system are multifactorial and range from unavailability of opioids, inappropriate administration of available drugs, inadequate training of nurses and doctors with fears of side-effects and addiction secondary to the use of opioids. Besides, it is a common notion that 'if a patient is operated, there will be pain.' Similarly, patients with cancer pain are resigned to suffer in silence and their families to bear the suffering. Progress in pain management over the last few decades has demonstrated that effective pain relief can be achieved with a range of inexpensive drugs and treatments. Educating health care providers to deliver efficient pain relief with 'what they have' rather than waiting for state of the art provisions was the objective that led to designing of this program. This series of courses attempted to educate nurses and anaesthesiologists to utilize available pharmacological and technical resources effectively [3-9]. Emphasis was given to proper pain assessment, communication with and reassurance of patients, and awareness of the scope and limitations of available modalities.

The impact of these courses on clinical practice was varied. A positive outcome of course-I was the introduction of VAS pain score in surgical wards of the participating hospitals. This can be considered an achievement as pain assessment is the first step in effective pain management. The overall objective of course-II was to initiate formal APMS in the participating hospitals. However, despite several reminders to the heads of Anaesthesiology departments and to the participants, formal APMS were initiated in 3 out of 8 hospitals. While the rest are still struggling with bureaucratic hassles. One of the reasons is poor existing infrastructure compromising the safety of provided care. In course-III, the aim was to introduce limited interventional pain service for cancer pain patients in leading government sector hospitals. As an initial step celiac plexus block was identified, that is one of the commonest nerve blocks in cancer patients. Although none of the participants till present achieved independent procedure privileges but 3 are performing this block under supervision and maintaining their log books with a hope that others will follow. In course-IV, general practitioners agreed that an acceptable amount of knowledge and understanding of pain management is vital for the care of their patients. In their routine

practice, 7 of the participants are regularly referring their patients requiring expert pain care and seeking our advice and services.

Our experience verified a dire need of conducting similar training and educational activities to improve patient care and negotiating these activities throughout the country to ensure consistency and standardization of care. Education is the best way of establishing quality in practice and we strive to continue with this mission in our region and recommend similar endeavors for other developing countries.

## Conclusion

These courses were conducted as an initial step towards this change in practices and expectations. It is fortunate for developing countries that the International Society for the Study of Pain has recognized this and is collaborating with pain centers in developing countries to highlight the problem and to find locally-available, practical solutions. Hopefully with combined efforts, the situation can be improved and patients will stop suffering needlessly.

## References

1. Akram M, Khan FJ (2007) Health care services and government spending in Pakistan.
2. Health expenditure-public (% of government expenditure) in Pakistan.
3. Postoperative Pain Management – Good Clinical Practice; General recommendations and principles for successful pain management. Produced in consultation with the European Society of Regional Anaesthesia and Pain Therapy.
4. WHO cancer pain ladder for adults.
5. WHO surgical safety checklist.
6. Hockenberry MJ, Wilson D (2009) Wong's Essentials of Pediatric Nursing (8thedn.) St. Louis, Mosby.
7. Brennan F, Carr DB, Cousins M (2007) Pain management: a fundamental human right. *Anesth Analg* 105: 205-221.
8. D Lohman, R Schleifer, JJ Amon (2010) Access to pain treatment as a human right. *BMC Med* 8: 8.
9. Ramani V (2011) Managing acute pain in developing world. *Pain clinical updates. IASP newsletter* 19: 1-6.