



MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

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MGM 11 MD DERMATOLOGY

PROGRAMME OUTCOME

SUBJECT SPECIFIC OBJECTIVES

At the end of 3 years of post graduate training in Dermatology, Venereology & Leprosy:

- Student should have knowledge of basic sciences (Anatomy, Physiology, Biochemistry, Microbiology, Pathology and Pharmacology) as applied to dermatology. The student should acquire in-depth knowledge of his subject including recent advances. The student should be fully conversant with the bedside procedures (diagnostic and therapeutic) and having knowledge of latest diagnostics and therapeutics available.
- Student should have acquired practical and procedural skills related to the subject.
- Critically evaluate, initiate investigation and clinically manage cases in Dermatology, Venereology and Leprosy with the help of relevant investigations.

- Should plan and advise measures for the prevention and rehabilitation of patients with various dermatological conditions.
- Able to ensure the implementation of National Health Programmes, particularly in sexually transmitted diseases (STD) and leprosy.
- Acquire training skills in research methodology, professionalism, attitude and communication skills, as below:
 - Student must know basic concepts of research methodology, plan a research project, consult library and online resources, has basic knowledge of statistics and can evaluate published studies.
 - Should be able to practice the specialty of dermatology ethically.
 - Recognize the health needs of patients and carry out professional obligations in keeping with principles of National Health Policy and professional ethics.
- Teaching skills in the subject
 - Student should learn the basic methodology of teaching and develop competence in teaching medical/paramedical students.
- Should have acquired Problem Solving skills

SUBJECT SPECIFIC COMPETENCIES

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

A. Cognitive domain

At the end of the course, the student should have acquired following theoretical competencies:

- Describe structure, functions and development of human skin.
- Describe ultrastructural aspects of epidermis, epidermal appendages, dermo-epidermal junction, dermis, and sub-cutis.
- Describe basic pathologic patterns and reactions of skin.
- Demonstrate the knowledge of common laboratory stains and procedures used in the histopathologic diagnosis of skin diseases and special techniques such as immunofluorescence, immunoperoxidase and other related techniques.
- Describe the basics of cutaneous bacteriology, mycology, virology, parasitology and host resistance.
- Describe papulosquamous and vesiculobullous disorders.
- Describe disorders of epidermal appendages and related disorders.
- Describe inflammatory and neoplastic disorders of dermis.
- Describe skin lesions in nutritional, metabolic and heritable disorders.

- Describe pharmacokinetics and principles of topical and systemic therapy.
- Describe drug reaction, its diagnosis and management.
- Describe cutaneous manifestations of systemic disorders.
- Describe anatomy of male and female genitalia, epidemiological transmission, clinical aspects and management of STDs and HIV.
- Describe clinical features, reactions, treatment and rehabilitation in leprosy.
- Describe etiology, pathophysiology, principles of diagnosis and management of common problems in dermatology including emergencies in adults and children.
- Describe indications and methods for fluid and electrolyte replacement therapy including blood transfusion in dermatological conditions.
- Describe common dermatological malignancies in the country and their management including prevention.
- Should be expert in evaluation of ECG, chest X-ray (CXR), biochemical, haematology and immunology reports related to dermatology.
- Acquire knowledge of common laboratory stains and procedures used in the histopathologic diagnosis of skin diseases and special techniques such as immuno-fluorescence, immuno-peroxidase and other related techniques.
- Acquire knowledge of the basics of laser operation and precautions which needs to be taken.
- Demonstrate competence in basic concepts of research methodology and interpretation of data in medical literature/publications.
- Skilled as a self-directed learner, recognize continuing educational needs; use appropriate learning resources and critically analyze relevant published literature in order to practice evidence-based dermatology;
- Should also have a broad idea how to approach an uncommon dermatological disease.

B. Affective Domain

At the end of the course, the student should have acquired the following attitudinal competencies:

- Demonstrate self-awareness and personal development in routine conduct.
- **Behavior and Emotional Stability:** Dependable, disciplined, dedicated, stable in emergency situations and shows positive approach.
- **Motivation and Initiative:** Is innovative, enterprising, does not shirk duties or leave any work pending and motivates team members.
- **Honesty and Integrity:** Is truthful, admits mistakes, does not cook up information, has ethical conduct and exhibits good moral values.
- **Interpersonal Skills and Leadership Quality:** Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

- Should be able to maintain confidentiality with regards to history, physical examination and management of patients.
- Identify social, economic, environmental, biological and emotional determinants of patients, and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to patients at individual and community level against skin, venereal disease and leprosy.
- Recognize the emotional and behavioral characteristics of patients and keep these fundamental attributes in focus while dealing with them.
- Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities.
- Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities.
- Organize and supervise the desired managerial and leadership skills.
- Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
- Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.

C. Psychomotor Domain

A student at the end of training of 3 years of MD programme, must acquire the following practical skills:

- General medical skills as learnt in MBBS to be maintained:
 - Should be able to provide basic life support (BLS).
 - Should be expert in blood pressure measurement, intravenous access, blood sampling, fluid electrolytes therapy, pleural and cerebrospinal; fluid (CSF) fluid examination.
 - Should be able to provide basic and advanced life-saving support services in emergency situations.
 - Should be able to undertake complete monitoring of the patient and identify social, economic, environmental and emotional determinants in a given case and take them into account for planning therapeutic measures.
- Recognize conditions that may be outside the area of his specialty/competence and refer them to the proper specialist.

Dermatology, Venereology and Leprosy, HIV/AIDS Skills

The student should:

- Acquire skills in history taking, physical examination, diagnosis and management of patients in dermatology, venereology and leprosy.
- Be able to identify, classify and differentiate cutaneous findings in dermatological terms in a systematic way.
- Be able to perform systemic examination (chest, cardiac, abdomen, neurological, genitals, oral, eye and gynaecological examination) relevant to dermatologic condition.
- Be competent to manage dermatologic emergencies like angioedema, toxic epidermal necrolysis (TEN), Stevens-Johnson syndrome (SJS), pemphigus, drug reaction and necrotic erythema nodosum leprosum (ENL).
- Be able to plan and deliver comprehensive treatment for diseases using principles of rational drug therapy.
- Be able to plan and advice measures for the prevention of infectious disease.
- Be able to plan rehabilitation of patient suffering from chronic illness and disability and those with special needs like leprosy.
- Demonstrate skills in documentation of case details and of morbidity/mortality data relevant to the assigned situation.

Laboratory Skills

The student:

- Should be able to perform common laboratory procedures like potassium hydroxide (KOH) mount, Gram stain, Giemsa stain, acid fast bacilli (AFB) stain, Woods lamp examination, stains, culture media etc. related to the cutaneous diagnosis independently.
- Should be able to order relevant investigations and interpret them to reach to a diagnosis.
- Should be familiar with other recent investigations.

Dermatopathology - Student should be competent enough to:

- To interpret histopathology of common skin diseases.
- To diagnose common skin diseases by examining slides under microscope.

Surgery in dermatology

At the end of training following skills should be performed independently by the student:

1. Should able to give incisions, take stitches and sutures.
2. Should be trained in taking skin biopsy and nail biopsy.
3. Should be able to perform chemical peels, manual dermabrasion, skin punch grafting and wound dressing independently.

4. Should be able to perform cryosurgery, nail surgery and acne surgery.
5. Able to perform chemical cauterization, cryotherapy, patch and photopatch test, slit smears and tissue smears.

Venereology

1. Should be competent in the clinical approach to the patient of STDs and HIV/AIDS.
2. Should be able to interpret the histopathological diagnosis including laboratory aids related with venereology.
3. Able to perform dark ground illumination, gram stain, Bubo aspiration and tissue smear.
4. Able to manage the patient according to syndromic approach for treatment of STDs.

Leprosy

The student should be:

1. Able to diagnose and approach the case of leprosy.
2. Perform AFB smear.
3. Able to manage cases of lepra reaction.
4. Identify, judge and decide when to refer the patients at appropriate level for surgery or rehabilitation. Should be able to manage pediatric cases with skin diseases.

COURSES OUTCOMES

Syllabus

Course contents

Topics related to allied basic sciences

- The structure, functions and development of human skin.
- Ultrastructural aspects of epidermis, epidermal appendages, dermo-epidermal junction, dermis, and sub-cutis.
- Immunology, molecular biology and genetics in relation to the skin.
- Epidermal cell kinetics and keratinization.
- Lipids of epidermis and sebaceous glands.
- Percutaneous absorption.
- Skin as an organ of protection and thermoregulation.
- Biology of eccrine and apocrine sweat glands.
- Biology of melanocytes and melanin formation.
- Biology of hair follicles, sebaceous glands and nails.
- Epidermal proteins.
- Dermal connective tissue: collagen, elastin, reticulin, basement membrane and ground substance.
- Metabolism of carbohydrates, proteins, fats and steroids by the skin.
- Cutaneous vasculature and vascular reactions.

- Mechanism of cutaneous wound healing.
- Cellular and molecular biology of cutaneous inflammation and arachidonic acid metabolism.
- Immunologic aspects of epidermis.
- Human leukocyte antigen (HLA) system.
- Immunoglobulins.
- Cytokines and chemokines.
- Lymphocytes, neutrophils, eosinophils, basophils and mast cells.
- Complement system.
- Hypersensitivity and allergy.
- Cutaneous carcinogenesis (chemical, viral and radiation).
- Basics of cutaneous bacteriology, mycology, virology, parasitology and host resistance.
- Common laboratory procedures, stains, culture media etc. related to the cutaneous diagnosis.
- Basic pathologic patterns and reactions of skin.
- Common laboratory stains and procedures used in the histopathologic diagnosis of skin diseases and special techniques such as immunofluorescence, immunoperoxidase and other related techniques.

Clinical dermatology

- Epidemiology of cutaneous disease.
- Psychologic aspects of skin disease and psycho-cutaneous disorders.
- Pathophysiology and clinical aspects of pruritus.

Papulosquamous diseases

- Psoriasis, pityriasis rubra pilaris, pityriasis rosea.
- Parapsoriasis, lichen planus, lichen nitidus.
- Palmo-plantar keratodermas, Darier's disease, porokeratosis.
- Ichthyoses and ichthyosiform dermatoses.
- Kyrle's disease and other perforating disorders.

Vesiculo - bullous disorders

- Erythema multiforme, Stevens-Johnson syndrome, Toxic epidermal necrolysis.
- Bullous pemphigoid, Pemphigus.
- Chronic bullous disease of childhood.
- Herpes gestationis (pemphigoid gestationis).
- Hereditary epidermolysis bullosa.
- Epidermolysis bullosa acquisita.
- Dermatitis herpetiformis.
- Familial benign pemphigus.

- Subcorneal pustular dermatoses.
- Pustular eruptions of palms and soles.

Disorders of epidermal appendages and related disorders

- Disorders of hair and nails.
- Disorders of sebaceous glands.
- Rosacea, Perioral dermatitis, acne.
- Disorders of eccrine and apocrine sweat glands.
- Follicular syndromes with inflammation and atrophy.

Epidermal and appendageal tumours

- Precancerous lesions, squamous cell carcinoma and basal cell carcinoma
- Keratoacanthoma, benign epithelial tumours, appendageal tumours
- Merkel cell carcinoma, Paget's disease

Disorders of melanocytes

- Disorders of pigmentation, albinism, benign neoplasia and hyperplasias of melanocytes, dysplastic melanocytic nevi, cutaneous malignant melanoma.

Inflammatory and neoplastic disorders of the dermis

- Acute febrile neutrophilic dermatosis (Sweet's syndrome)
- Erythema elevatum diutinum
- Cutaneous eosinophilic diseases
- Granuloma faciale
- Pyoderma gangrenosum
- Erythema annulare centrifugum and other figurate erythemas
- Granuloma annulare
- Malignant atrophic papulosis (Deigo's Disease)
- Neoplasms, pseudoneoplasms and hyperplasias of the dermis
- Vascular anomalies
- Kaposi's Sarcoma
- Anetoderma and other atrophic disorders of the skin
- Ainhum and pseudoainhum
- Neoplasias and hyperplasias of neural and muscular origin
- Elastosis perforans serpiginosa and reactive perforating collagenosis

Lymphomas, pseudolymphomas and related conditions

Disorders of subcutaneous tissue

- Panniculitis

- Lipodystrophy
- Neoplasms of the subcutaneous fat

Disorders of the mucocutaneous integument

- Biology and disorders of the oral mucosa
- Disorders of the anogenitalia of males and females

Cutaneous changes in disorders of altered reactivity

- Genetic immunodeficiency diseases
- Urticaria and Angioedema
- Disorders associated with complement abnormalities
- Graft-versus-host Disease
- Mucocutaneous manifestations in immunosuppressed host other than HIV-infection
- Contact dermatitis
- Auto-sensitization dermatitis
- Atopic dermatitis (atopic eczema)
- Nummular eczematous dermatitis
- Seborrhoeic dermatitis
- Vesicular palmoplantar eczema

Skin changes due to mechanical and physical factors

- Occupational skin disease
- Radiobiology of the skin
- Skin problems in amputee
- Sports dermatology
- Skin problems in war field
- Decubitus ulcers

Photomedicine, photobiology and photo immunology in relation to skin

- Acute and chronic effects of ultraviolet radiation and sun light on the skin
- Narrow-band ultraviolet B (NBUVB) therapy, phototherapy, photochemotherapy

Disorders due to drugs and chemical agents

- Cutaneous reactions to drugs
- Mucocutaneous complications of anti-neoplastic therapy
- Cutaneous manifestations of drug abuse

Dermatology and the ages of man

- Neonatal dermatological problems
- Pediatric and adolescent dermatological problems

- Ageing of skin
- Geriatric dermatological problems

Skin lesions in nutritional metabolic and heritable disorders

- Cutaneous changes in nutritional disease
- Acrodermatitis enteropathica and other zinc deficiency disorders
- Cutaneous changes in errors of amino acid metabolism: Tyrosinemia II, phenylketonuria, arginine succinic aciduria, and alkaptonuria
- Amyloidosis of the skin
- The porphyrias
- Xanthomatosis and lipoprotein disorders
- Fobry's Disease; galactosidase - a deficiency (Angiokeratoma corporis diffusum universale)
- Lipid proteinosis
- Cutaneous mineralisation and ossification
- Heritable disorders of connective tissue with skin changes
- Heritable disease with increased sensitivity to cellular injury
- Basal cell Naevus syndrome

Skin manifestations of hematologic disorders

- Skin changes in hematological disease
- Langerhans cell and other cutaneous histiocytoses
- The Mastocytosis syndrome

Skin manifestations of systemic disease

- The skin and disorders of the alimentary tract
- The hepatobiliary system and the skin
- Cutaneous changes in renal disorders, cardiovascular, pulmonary disorders and endocrinal disorders
- Skin changes and diseases in pregnancy
- Skin changes in the flushing disorders and the carcinoid syndrome

Skin manifestations of rheumatologic disease

- Lupus Erythematosus
- Dermatomyositis
- Scleroderma
- Systemic Necrotizing Arteritis
- Cutaneous Necrotising venulitis
- Cryoglobulinemia and Cryofibrinogenemia
- Relapsing Polychondritis
- Rheumatoid Arthritis, Rheumatic Fever and Gout

- Sjogren's syndrome
- Raynaud's phenomenon
- Reiter's syndrome
- Multicentric Reticulohistiocytosis

Cutaneous manifestations of disease in other organ systems

- Sarcoidosis of the skin
- Cutaneous manifestations of Internal Malignancy
- Acanthosis Nigricans
- Scleredema
- Papular Mucinosis
- Neurocutaneous disease
- Tuberous Sclerosis Complex
- The Neurofibromatosis
- Ataxia Telangiectasia
- Behcet's disease

Bacterial diseases with cutaneous involvement

- General considerations of bacterial diseases
- Pyodermas: Staphylococcus aureus, Streptococcus, and others
- Staphylococcal Scalded-Skin syndrome
- Soft Tissue Infections: Erysipelas, Cellulitis, Septicemia and Gangrenous Cellulitis
- Gram-Negative Coccal and bacillary infections
- Bartonellosis
- Miscellaneous bacterial infections with cutaneous manifestations
- Tuberculosis and other mycobacterial infections
- Actinomycosis, Necardiosis, and Actinomycetoma
- Lyme Borreliosis
- Kawasaki Disease

Fungal diseases with cutaneous involvement

- Superficial fungal infection: Dermatophytosis, Tinea Nigra, Piedra
- Yeast Infections: Candidiasis, Pitryiasis (Tinea) Versicolor
- Deep Fungal Infections

Viral and ricketisial disease

- Viral Diseases: general consideration
- Rubella (German Measles)
- Measles
- Hand, Foot and Mouth Disease
- Herpangina

- Erythema Infectiosum and Parvovirus B 19 infection
- Herpes simplex
- Varicella and Herpes Zoster
- Cytomegalovirus Infection
- Epstein - Barr Virus Infections
- Human Herpes virus 6 & 7 infections and Exanthem subitum (Roseola Infantum or Sixth Disease)
- Smallpox and Complications of small pox vaccination
- Contagious Pustular Dermatitis, Contagious Ecthyma: Orf virus infection
- Milluscum Contagiosum
- Miller's Nodules
- Warts
- Human Retroviral Disease: Human T-Lymphotropic Virusviruses

Therapeutics

Topical therapy

- Pharmacokinetics principles intopical applications of drugs.
- Principles of topical therapy.

Topical agents

- Glucocorticoids, Acne therapies, Analgesics, Anesthetics, Anti-inflammatory, Anti hair loss, Anti-microbial, Anti-parasitic, Anti-perspirants, Anti-pruritic, Anti-viral, Astringents, Bleaching agents, Keratolytics, Psoriasis therapies, Wart therapies, Topical Retinoids, Topical Antibiotics, Topical Anti-fungal Agents, Sun-protective Agents, Keratolytic Agents, Topical Cytotoxic Agents, Cosmetics and Skin care in practice.

Systemic therapy

- Systemic glucocorticoids, Sulfones, Aminoquinolines, Cytotoxic and Antimetabolic Agents, Oral Retinoids, Antihistamines, Antibiotics, Antiviral Drugs, Oral Antifungal Agents, Immunosuppressive and Immunomodulatory drugs, Thalidomide, photo-chemotherapy and photo-therpay, electric cautery, cryotherapy, electrolysis, tattoeing, intra-lesional injections etc.

Surgery in dermatology

- Dermatologic Surgery: Introduction and Approach
- Skin Resurfacing: Chemical Peels
- Skin Resurfacing: Dermabrasion
- Skin Resurfacing: Laser
- Skin punch grafting
- Wound Dressings
- Cryosurgery

- Nail Surgery

Venereology

- Clinical approach to the patient of sexually transmitted disease
- Anatomy of male and female genitalia
- Epidemiological aspects of STDs
- Viral STDs including HIV, Herpes, Human Papilloma virus (HPV), Molluscum contagiosum, Espirito Santo virus (ESV) etc.
- Bacterial STD's: Syphilis, Gonorrhoea, Chancroid, Donovanosis
- Chlamydial infections: Lymphogranuloma venereum, urethritis, cervicitis, nongonococcal urethritis (NGU), non-specific vaginitis etc.
- Fungal: Candidiasis
- Protozoal: Trichomoniasis
- Ectoparasitic: Scabies, Pediculosis infestations.
- Syndromic management of STDs
- HIV/AIDS - Epidemiology, transmission, patient load, High risk groups, cutaneous manifestations of HIV, treatment of opportunistic infections, antiretroviral therapy, management of STDs in HIV positive cases
- STDs in reproduction health and Pediatrics
- STDs and HIV
- Prevention, counselling and education of different STDs including HIV
- National Control Programmes of STDs and HIV infection
- Medico-legal, social aspects of STDs including psychological and behavioural abnormalities in STD patients

Leprosy

- Approach to the patient with leprosy
- Epidemiological aspects
- Structure, biochemistry, microbiology of Mycobacterium leprae
- Animal models
- Pathogenesis
- Classification

- Immunology and molecular biological aspects
- Histopathology and diagnosis including laboratory aids
- Clinical features
- Reactions
- Systemic involvement (Ocular, bone, mucosa, testes and endocrine etc.)
- Pregnancy and leprosy
- HIV infection and leprosy



Dr. Rajesh B. Goel

Registrar

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