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IMPORTANT

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Glimicron[®] MR 30 mg Tab., 60 mg Tab.
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Neocox[®] 60 mg Tab., 90 mg Tab., 120 mg Tab.
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Tablet



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ACI

Brand Name: Glarine Biopen
Generic Name: Insulin Glargine USP
Dosage Form: Injection (Disposable)
Strength: 3ml (100IU/ml)
Indications: Type 1 and Type 2 Diabetes adjunct to diet and exercise.



Brand Name: Flomyst-F HFA Inh
Generic Name: Formoterol Fumarate Dihydrate BP + Fluticasone Propionate BP
Dosage Form: HFA Inhaler
Strength: 5/125mcg, 5/125mcg, 10/250mcg
Indications: Regular treatment of asthma where the use of a combination product (inhaled corticosteroid and long-acting β 2-agonist) is appropriate. For patients not adequately controlled with inhaled corticosteroids and 'as required' inhaled short-acting β 2-agonist (SABA), or for patients already adequately controlled on both an inhaled corticosteroid and a long-acting β 2-agonist (LABA).



ACME

Brand Name: ACME's Chyabanprash
Generic Name: Chyabanprash
Dosage Form: Semisolid
Strength: Each 5gm ACME's Chyabanprash contains Phyllanthus emblica 5.35gm, Aegle marmelos 71.33gm, Vitis vinifera 71.33gm, Terminalia chebula 71.33gm, Adhatoda vasica 71.33gm and other ingredients.
Indications: Cough, Dyspnea, Bronchitis & Immune deficiency.



Brand Name: Bexitrol-F Maxhaler
Generic Name: Salmeterol & Fluticasone Propionate
Dosage Form: mDPI
Strength: 50/100 mcg, 50/250 mcg, 50/500 mcg
Indications: In patients with Asthma & COPD



Brand Name: Maxima MUPS
Generic Name: Eesomeprazole Magnesium Trihydrate USP
Dosage Form: MUPS Tablet
Strength: 20mg
Indication: Gastroesophageal Reflux Disease (GERD), Risk reduction of NSAID-associated gastric ulcer, H. pylori eradication, Zollinger-Ellison syndrome.



Brand Name: Telmacal
Generic Name: Telmisartan Plus Amlodipine
Dosage Form: Tablet
Strength: Telmisartan 80 mg & Amlodipine 5 mg
Indications: For Uncontrolled Hypertension & Incredible CV Protection.



Brand Name: Zero Sachet
Generic Name: Sucralose
Dosage Form: Granules
Strength: 12 mg
Indications: Diabetes, overweight patients & is suitable for health conscious people.



Eskayef

Brand Name: Lulizol
Generic Name: Luliconazole INN 1%
Dosage Form: Cream
Strength: 1%
Indications: Tinea Corporis, Tinea Pedis and Tinea Cruris



Beximco

Brand Name: Exovate N
Generic Name: Clobetasol Propionate + Neomycin Sulfate + Nystatin
Dosage Form: Ointment
Strength: Clobetasol Propionate 0.5 mg + Neomycin 3.5 mg + Nystatin 100000 units per gram.
Indications: Resistant Eczema, Chronic Psoriasis and Mixed Dermatoses



Brand Name: Nycof
Generic Name: Guaifenesin, Diphenhydramine, Levomenthol combination
Dosage Form: Syrup
Strength: Guaifenesin USP 100 mg, Diphenhydramine USP 14mg, Levomenthol BP 1.1mg
Indication: Night time cough.

Pharmaceuticals⁺

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Brand Name: Nycof D
Generic Name: Dextromethorphan, Diphenhydramine, Levomenthol combination.
Dosage Form: Syrup
Strength: Dextromethorphan USP 6.5mg, Diphenhydramine USP 14mg, Levomenthol BP 2mg
Indication: Night time dry cough



Brand Name: Bactropen
Generic Name: Mupirocin USP
Dosage Form: Ointment
Strength: 2%w/w
Indications: For the treatment of impetigo, folliculitis & furunculosis.



Brand Name: Telmitan®
Generic Name: Telmisartan BP
Dosage Form: Tablet
Strength: 40mg & 80mg
Indications: Hypertension & Cardiovascular Diseases (CVD) risk reduction



Brand: Spirocard
Generic: Spironolactone
Strength: 50mg
Dosage Form: Tablet
Indications: Heart Failure, Resistant Hypertension, Edema, Hyperaldosteronism, Hirsutism, Acne vulgaris Caused by PCOS.



Brand Name: Brexli
Generic Name: Brexpiprazole
Dosage Form: Film Coated Tablet
Strength: 0.5mg & 1mg
Indication: Schizophrenia, Adjunctive treatment of Major Depressive Disorder (MDD).



One Pharma
Brand Name: Bidicod
Generic Name: Butamirate Citrate
Dosage Form: Syrup
Strength: 7.5mg/5ml
Indications: It is used to relieve dry (non-productive) cough, Cough suppression during pre and post-operative surgical interventions (Bronchoscopy), Whooping cough etc.



Brand Name: Algecal®
Generic Name: Calcium + Vitamin D3
Dosage Form: Tablet
Indications: Osteoporosis, Osteomalacia, Tetany, Hypoparathyroidism, Osteogenesis



Renata
Brand Name: Coralcin-D
Generic Name: Calcium Carbonate USP (from Coral source) and Vitamin D₃ USP
Dosage Form: Tablet
Strength: 1250mg & 200IU
Indications: Osteoporosis, Osteomalacia, Rickets, Tetany



Brand Name: Starcox
Generic Name: Etoricoxib
Dosage Form: Tablet
Strength: 60mg & 90mg
Indications: For the relief of pain & inflammation in Osteoarthritis, Rheumatoid arthritis, Acute gout, Dysmenorrhoea, Pain following dental surgery.



Brand Name: Onclav
Generic Name: Amoxicillin + Clavulanic Acid
Dosage Form: Tablet & Powder for Suspension (PFS)
Strength: 500 + 125mg Tablet & 125 + 31.25 mg/5ml PFS
Indications: Upper respiratory tract infections (including ENT); e.g., tonsillitis, sinusitis, otitis media. Lower respiratory tract infections; e.g., acute and chronic bronchitis, lobar and bronchopneumonia. Genito-urinary tract infections; e.g., cystitis, urethritis, pyelonephritis. Skin and soft tissue infections. Bone and joint infections; e.g., osteomyelitis. Other infections; e.g., septic abortion, puerperal sepsis, intra-abdominal sepsis etc.



Brand Name: Oralis® Cavicare
Generic Name: Sodium Fluoride
Dosage Form: Mouthwash
Strength: 120ml & 250ml
Indication: Dental cavity & bad breath



Brand Name: Peptofit®
Generic Name: Bismuth Subsalicylate BP
Dosage Form: Suspension
Strength: 200ml
Indications: Hyperacidity, Stomach upset, Indigestion, Nausea & Diarrhea.



Brand Name: Magsum
Generic Name: Magnesium Sulfate BP
Dosage Form: Injection
Strength: 2.5gm/5ml
Indications: Convulsions, Hypomagnesemia, Tetany, Uterine (treatment) - Magnesium sulfate injection is indicated in uterine tetany as a myometrial relaxant.



Brand Name: Pimponil Gel
Generic Name: Clindamycin 1.2% & Tretinoin 0.025%
Dosage Form: Gel
Strength: 15gm
Indications: For the topical treatment of Acne vulgaris.



Opsonin
Brand Name: Alistin® DT
Generic Name: Acetylcysteine USP
Dosage Form: Dispersible Tablet
Strength: 600mg
Indications: Smoking, Asthma, Pneumonia, COPD, Bronchitis, Bronchiectasis induced coughing



Popular
Brand: Cicloderm
Generic: Ciclopirox Olamine
Dosage Form: Cream
Strength: 1% Ciclopirox Olamine
Indications: Tinea Pedis, Tinea Cruris, Tinea Corporis, Tinea Versicolor, Candidiasis, Seborrheic Dermatitis.



Brand Name: Pulmino®
Generic Name: Doxofylline
Dosage Form: Oral Tablet
Strength: 200mg & 400mg
Indications: Asthma, COPD, and Chronic Bronchitis.



Brand Name: Cefadyl
Generic Name: Cefixime
Dosage Form: Capsule
Strength: 400mg
Indications: Upper & Lower Respiratory Tract Infections, Typhoid Fever, Urinary Tract Infections, as switch therapy.



Brand Name: Carticel® TS
Generic Name: Glucosamine Sulfate & Chondroitin Sulfate
Dosage Form: Tablet
Strength: Glu. Sul. 750mg & chon. Sul. 600mg
Indications: Arthritic condition of the joint & cartilage matrix enhancer.



Brand: Jakloc
Generic: Tofacitinib
Dosage Form: Tablet
Strength: 5mg
Indications: Rheumatoid arthritis, Psoriatic arthritis and Ulcerative colitis.



Brand Name: Stark
Generic Name: Rupatadine
Dosage Form: Tablet
Strength: 10mg
Indications: Allergic Rhinitis, Urticaria, and Allergic Rhino-conjunctivitis.



NIPRO JMI
Brand Name: Avamist
Generic Name: Fluticasone Furoate INN
Dosage Form: Nasal Spray
Strength: 27.5 microgram/spray
Indication: Allergic Rhinitis.



Brand: M-beg
Generic: Mirabegron
Dosage Form: Tablet
Strength: Mirabegron 25mg & 50mg ER table
Indications: Urinary Urgency, Incontinence & Frequency.



Brand Name: Thyrox
Generic Name: Levothyroxine Sodium
Dosage Form: Tablet
Strength: 25mcg
Indications: Hypothyroidism, for suppressing Thyrotropin, for the management of TSH responsive tumors, Thyroiditis (Hashimoto's disease).

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Sharif

Brand Name: Dexkof Plus
Generic Name: Dextromethorphan, Phenylephrine & Triprolidine
Dosage Form: Syrup
Strength: 100ml
Indications: Dry Cough, Rhinorrhea, Nasal congestion, Nasal stuffiness.



Brand Name: Uripam
Generic Name: Saw Palmetto+Pygeum+Ginseng+Zinc+Copper
Dosage Form: Softgel Capsule
Strength: 160mg+1.7mg+3.3mg+33.1mg+2mg
Indication: Benign Prostatic Hyperplasia (BPH).



Square

Brand Name: Gutfix
Generic Name: Lubiprostone
Dosage Form: Licap
Strength: 24mcg
Indication: Chronic Idiopathic Constipation (CIC), Opioid Induced Constipation (OIC).



Brand Name: Elorim
Generic Name: Eflornithine
Dosage Form: Cream
Strength: 13.9%
Indication: Hirsutism.



Brand Name: Luraprex
Generic Name: Lurasidone
Dosage Form: Tablet
Strength: 20mg
Indication: Schizophrenia & Bipolar Depression.



Brand Name: Folita
Generic Name: Leucovorin (Folinic Acid)
Dosage Form: Tablet
Strength: 5mg
Indication: Megaloblastic anemia due to Folate deficiency, to diminish the toxicity of Methotrexate.



Brand Name: Cozycol
Generic Name: Mesalamine
Dosage Form: DR Tablet
Strength: 800mg
Indication: Ulcerative Colitis, Crohn's disease.



Brand Name: Germicord
Generic Name: Chlorhexidine Gluconate
Dosage Form: Solution
Strength: 7.1%
Indication: Prophylaxis of Omphalitis (Inflammation of umbilical cord).



Brand Name: Betameson
Generic Name: Betamethasone Dipropionate
Dosage Form: Cream & Ointment
Strength: 0.05%
Indication: Relief of inflammatory and pruritic manifestations of resistant or severe corticosteroid-responsive Dermatitis, such as Atopic Eczema, Contact Dermatitis etc.



Brand Name: Rapiflo
Generic Name: Silodosin
Dosage Form: Capsule
Strength: 8mg
Indication: Benign Prostatic Hyperplasia (BPH).



Brand Name: Betameson-CL
Generic Name: Betamethasone Dipropionate+Clotrimazole
Dosage Form: Cream
Strength: 0.05%+1%
Indication: Moderate to severe inflammatory fungal infections like Tinea Pedis, Tinea Cruris, Tinea Corporis etc.



Brand Name: Torsid
Generic Name: Torsemide
Dosage Form: Tablet
Strength: 5mg & 20mg
Indication: Fluid overload & peripheral edema associated with congestive heart failure, liver cirrhosis and kidney disease; High Blood Pressure.



White Horse

Brand Name: Bio-7®
Generic Name: Biotin
Dosage Form: Tablet
Strength: 1000mcg
Indication: Hair loss, Brittle Nails (Onychoschizia), Weak, splitting or soft nails, Eczema & dermatitis.



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BEHIND IN YOUR
LONG DESTINATION



Brand Name: Diastat®
Generic Name: Empagliflozin
Dosage Form: Tablet
Strength: 10mg & 25mg
Indication: Diabetes Mellitus Type-II.



Brand Name: Bose-V®
Generic Name: Voglibose
Dosage Form: Tablet
Strength: 0.2mg & 0.3mg
Indication: Diabetes Mellitus Type-II.



Brand Name: Linalit® M
Generic Name: Linagliptin & Metformin
Dosage Form: Tablet
Strength: Linagliptin 2.5mg & Metformin 500mg, Linagliptin 2.5mg & Metformin 850mg
Indication: Diabetes Mellitus Type-II.



Brand Name: Avocard®
Generic Name: Atorvastatin
Dosage Form: Tablet
Strength: 10mg & 20mg
Indication: Dyslipidemia, Hypercholesterolemia.



Brand Name: Coralvit® D
Generic Name: Calcium (from Coral Fossil) & Cholecalciferol 200
Dosage Form: Tablet
Strength: Calcium (From Coral Fossil) 500mg & Cholecalciferol 200 IU
Indication: Osteoporosis, Osteomalacia, Rickets, Tetany, Parathyroid disease etc.



Brand Name: Tri B®
Generic Name: Vitamin B₁, B₆ & B₁₂
Dosage Form: Tablet
Strength: Vitamin B1 100mg, B6 200mg & B12 200mcg
Indication: Diabetic neuropathy, Sciatica, Peripheral neuralgia, Facial neuralgia, Lumbago, Intercostal, Neuralgia, Myalgia, Spinal pain.

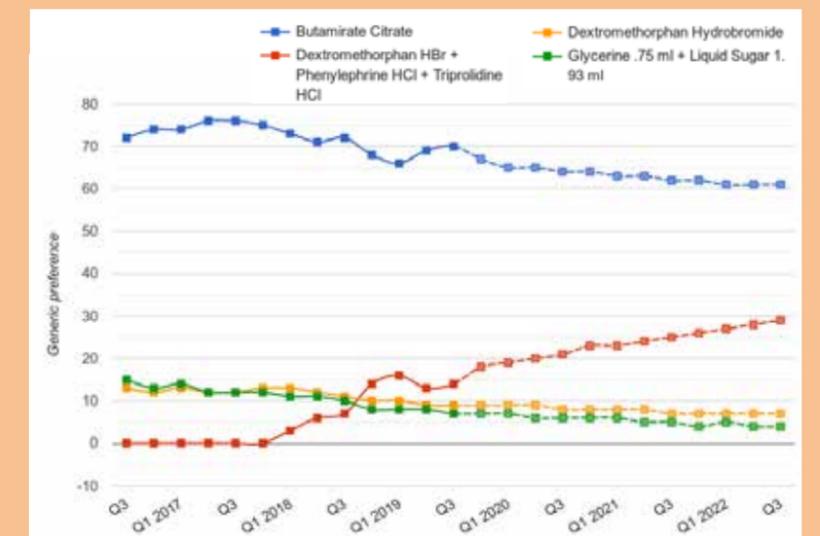
Dextromethorphan HBr + Phenylephrine HCl + Triprolidine HCl is becoming the competitors of Butamirate Citrate

Although **Butamirate citrate** is the doctor's one of the popular choices of dry cough management, but the prescribing tendency is changed by times. Rather **Dextromethorphan HBr + Phenylephrine HCl + Triprolidine HCl** has occupied the doctor's preference and becoming the competitor of Butamirate citrate in dry cough management.

To explore these facts, **ITmedicus** had made a close observation on doctor's prescribing behaviour of dry cough management. Initially the prescribing frequency of Dextromethorphan HBr combination was too low, whereas, the prescribing frequency of **Butamirate citrate** was initially high at 2018. Followed by the evaluation of prescribing tendency, in recent year 2019 the prescribing frequency has changed downward to Butamirate

citrate by 7% & upward to **Dextromethorphan HBr+Phenylephrine HCl+Triprolidine HCl** by 13% and **ITmedicus** presumes the continuity of such prescribing frequency

to the forecast period of 2022, which might lead Dextromethorphan HBr + Phenylephrine HCl+Triprolidine HCl to the top over Butamirate citrate in dry cough management.



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KHAN DEEN

Incepta celebrates 20 years of continuous success

Recently Incepta pharmaceuticals Ltd celebrated its 20th founding anniversary. During these two decades, Incepta Pharmaceuticals established itself as one of the leading pharmaceutical company in Bangladesh. Incepta began its journey with a handful of highly skilled and dedicated professionals. Proper strategic planning, technical excellence, swift and timely decisions helped Incepta achieve its objectives, leading to much faster growth. Moreover, it is the only pharmaceutical in Bangladesh that has separate Biotech, Vaccines, Hormonal products, Hospital Items, Diapers etc. in addition to its generic manufacturing facility.

From the very beginning, research has been a crucial part of Incepta. It is the foundation upon which developing new and quality healthcare products stands. Strong R & D in all its divisions equipped with the finest minds and latest machinery has enabled Incepta to launch many first-ever products in local market. Robust technology and validated processes ensured the launching of over 800 generics from two different manufacturing sites in Savar and Dhamrai.

Incepta vaccine Ltd. is the first ever locally manufactured vaccine producer in Bangladesh. Since starting its journey in June 2011, it has marketed 8 vaccines and 5 immunoglobulins to cater to the demands of the local market. Advanced bulk manufacturing facility has enabled Incepta to produce bulk vaccines in large quantities.

Incepta also pioneered the development of biotechnology-derived products. By launching Insulin and other biological products, it started the era of biotech products in Bangladesh. Incepta produces many life-saving biological products at an affordable price and thus making these products more accessible to the general population of Bangladesh. The global pharmaceutical market has already shifted



towards these biological products. To be aligned with the global pharmaceutical market, Incepta is manufacturing biosimilar biological products like monoclonal antibodies, Pegfilgrastim, Filgrastim, Erythropoietin etc.

Incepta hygiene and Hospicare started its operation in 2013. It produces premium quality infusion sets and surgical sutures from this facility. Incepta also has both baby and adult diapers branded as Neocare and Aspire respectively. Incepta herbal and Nutricare has integrated traditional medicine and modern science to manufacture scientifically validated herbal healthcare products.

Incepta achieved its tremendous success in business through honesty and sincerity in business policies. Company management strives to support community where they live and the nation in times of need. As its commitment to society, the company donates medicine to the Government Relief Fund during natural disaster. Incepta also awards scholarship to different universities and helped build a research lab at Bangladesh Council of Scientific and Industrial Research (BC-SIR) with financial contribution.

After consolidating the positions in domestic market, Incepta phar-

maceutical is exploring markets outside Bangladesh. It exports generic finished formulations in dosage and bulk form as well as small amount of API. Its export mission is to improve the health and well-being of people across the world. Beginning in 2006, Incepta has been successfully exporting 300+ generics to more than 67 different countries spanning over 5 continents. It has received the National Export Trophy in pharmaceutical sector on a number of occasions.

Incepta focuses on manufacturing of high quality products in compliance with laws of highly regulated countries. In January 2008, the company received "Certificate of GMP compliance" from European Union that opened the door to the European market for Incepta. It received UK MHRA, the regulatory authority of England, accreditation in 2011. Incepta has also been recognized by Health Canada in 2017 and by The Federal Institute for Drugs and Medical Devices (Bundesinstitut für Arzneimittel und Medizinprodukte, BfArM), Germany in 2018. Moving forward, Incepta wants to be a global hub for high quality affordable generic medicines, says the company press release.



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Pharma raw materials to be produced locally in 4 years

Nazmul Hassan, president of the Association of Pharmaceutical Industries said that the production of active pharmaceutical ingredients (API) for the pharmaceutical industry would begin at Gazaria, Munshiganj, in 2023. He said this while inaugurating the construction work of the common effluent treatment plant (CETP) in the plant area of the industrial park. Md Mostaque Hassan, chairman of the Bangladesh Small and Cottage Industries Corporation (BSCIC), said that the work on upgrading the park would be completed by June next year.

Nazmul Hasan, who is also a law-

maker, said that Bangladesh, as an LDC, would not have to pay any royalty for producing patented drugs till 2033, thus getting a great opportunity to produce API for its own use.

“Our country will turn into a developing country in 2024. So, it’s high time we made our own API plant before that. If we make it by then, we will not have to pay the patent royalty. After 2024, when Bangladesh becomes a middle-income country, it may lose the existing facilities under TRIPS (Trade-Related Aspects of Intellectual Property Rights) agreement. So, we must be prepared by that time,” he said.

“Bangladesh imports API from India and China, but they suddenly stopped exporting raw materials. As a result, the cost of medicine is increasing,” explained Papon.

He said Bangladesh should end its dependence on other countries for API. India and China are competing to grab the global pharmaceutical market, he added.

Maj. Gen. Dr Mahabubur Rahman, Director General of the Directorate of Drug Administration, Md Mostaque Hassan, chairman of BSCIC, and Alla Ayodhya Rami Reddy, chairman of Ramky Group in India, were also present on the occasion.

FREE DIABETES SCREENING PROGRAM 2019 ON WORLD DIABETES DAY BY SQUARE PHARMACEUTICALS

In order to create awareness against the hazardous consequences of Diabetes, Square Pharmaceuticals Ltd. arranged “Free Diabetes Screening Campaign” at 10 different locations in Dhaka city recently on the occasion of World Diabetes Day. The locations were Uttara Sector 7 Kollyan Samity Park, Uttara Sector 4 Kollyan Samity Park, Dr. Shaheed Fazle Rabi Park (Gulshan Niketon), Outside of Mirpur Indoor Stadium, Manik Mia Avenue, Mohammadpur Thana

Road, Ramna Park Gate, Azimpur Colony, Lalbagh Fort & Boldha Garden. On this occasion, around 2,500 people participated in this screening program enthusiastically. In addition, a patient awareness leaflet & 2 pcs Zerocal sachet were provided to all participants from Square Pharmaceuticals Ltd. and Square Toiletries Ltd. respectively.

Also, a Branded Caravan travelled around the city to let people know about the campaign.

BMJ INKS DEAL WITH THE PHARMA WORLD

BMJ having its headquarter in UK has signed an agreement with THE PHARMA WORLD appointing the latter as their representative in Bangladesh for promoting the e-Learning Courses among the physicians.

The courses are designed and conducted by BMJ to enhance the knowledge and skill of the physicians on management of various diseases.

International Arogya 2019 held in Varanasi, India

International Arogya 2019, the second international conference and exhibition on AYUSH and wellness systems organized by FICCI in collaboration with the Ministry of AYUSH, Ministry of Commerce & Industry, and Pharmexcil, and delegates participating from more than 60 countries and visitors from all over India meeting with buyers to provide an exclusive platform for various stakeholders to present their offerings through exhibition, international conference, B-2-B meetings, reverse buyer seller meeting, etc.

The four-day event was organized with an objective to have an integrative system of healthcare and wellness for the world. In addition to this objective, various plenary sessions were organized on issues like global strategies on mainstreaming brand AYUSH and integrating services in modern healthcare, standardization of products and services, integration of various processes of the value chain and highlighting the importance of AYUSH systems of medicines and therapy in treating modern day non-communicable diseases. The visitors and delegates also attended the lectures in the global summit which focused on managing various ailments through the alternative medicines and techniques.

In the plenary session, an India-BIMSTEC Perspective - Global Regime and Standardization Of AYUSH Products and Services, the panelists spoke about how there is a huge market globally which needs to be exploited and the need to comply with international standard to follow best manufacturing practices to ensure quality, safety and efficacy. The panel further spoke about the need to resolve trade and regulatory issues in order to build better linkages and cooperation between countries.



DURING A PANEL DISCUSSION, LEADER OF BANGLADESH DELEGATION, RUHUL AMIN, DIRECTOR, DGDA, BANGLADESH SPOKE AS A PANELIST AND LAID EMPHASIS ON IMPORTANT ISSUES INCLUDING IMPLEMENTATION OF MOU SIGNED BETWEEN INDIA & BANGLADESH AND URGED FOR CLOSE COLLABORATION BETWEEN THE TWO COUNTRIES FOR DEVELOPMENT OF THE AYURVEDA SECTOR IN BANGLADESH.

A 7-member Bangladesh government delegation along with representatives of Ayurveda, Unani sector participated in the event and exchanged views with members of other countries on matters of mutual interest.

During a panel discussion, Leader of Bangladesh Delegation, Ruhul Amin, Director, DGDA, Bangladesh spoke as a Panelist and laid emphasis on important issues including implementation of MoU signed between India & Bangladesh and urged for close collaboration between the two countries for development of the Ayurveda sector in Bangladesh.

Apart from the conferences and exhibitions, the visitors also enjoyed free health checkups and consultation, counseling by specialists, yoga demonstrations and naturopathy sessions.

The four-day event included exhibition and participation of over 250 exhibitors showcasing their products to the international delegates from over 60 countries including Bangladesh.

INTERNATIONAL AROGYA 2019 IN PICTURES



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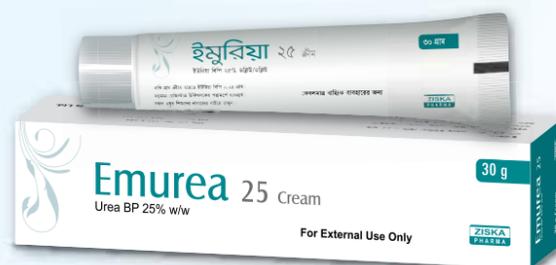
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DID YOU KNOW?

- According to the International Diabetes Federation, the prevalence rate of Diabetes patients will be 13% by 2030
- Nearly 463 million adults are currently living with Diabetes globally. Of these, around 80 million people need insulin to control their blood sugar levels, but many of them can't afford it due to its substantial shortages or skyrocketing prices
- According to International Diabetes Federation (IDF), approximately 463 million adults (20-79 years) were living with Diabetes; by 2045 this will rise to 700 million.
- In 2019, the estimated number of people over 65 years of age with Diabetes is 111 million. One in five adults in this age group is estimated to have Diabetes. It is projected that by 2030 the number of people over 65 with Diabetes will further increase to 195 million. By 2045, it will reach 276 million.
- According to International Diabetes Federation (IDF), the greatest number of people with Diabetes were between 40 and 59 years of age
- According to International Diabetes Federation (IDF), Diabetes caused 4.2 million deaths

7th Pharmaceutical Sciences World Congress 2020

The International Pharmaceutical Federation (FIP) invites you to attend the 7th Pharmaceutical Sciences World Congress, which will be held in Montreal, Canada, from 22 to 26 May 2020.

What's it about?

The theme of PSWC 2020 is "Smart therapeutics for a complex world", which aims to bring together pharmaceutical scientists and other medicines experts to design better, more sophisticated drugs and approaches to face world health challenges in the 21st century. This will be enabled by new tools at our disposal, such as nanomedicine, adaptive cell therapy, big data and artificial intelligence.

According to the Congress Chair, Professor Denis DeBlois, in the future, "one drug for all" will become the exception. He believes that therapeutics has to be "smart" to address a complex world where individuals differ in their responses to drugs, communities differ in their socio-economic conditions and healthcare systems also differ.

What's on offer?

Smarter approaches will have to be contextual and appropriate to meet the needs of individual patients and these approaches will have to be sustainable. From molecular mechanisms of drug action to clinical pharmacology and from population science to health technology, the PSWC 2020 programme provides a comprehensive overview of pharmaceutical development structured into four tracks:

- Novel concepts (e.g. new ways to approach/identify therapeutic modalities, small molecules, biologics, cell therapy)

Advanced strategies (e.g. new approaches to formulate and manufacture medicines, nano-medicines)

- Effective translation (e.g. how to move a medicine from research to the clinic, how to prove efficacy and safety in patients)
- Societal impact (e.g. evaluating real-world evidence and how it can be used to optimise medicines use)

PSWC is the only global, multidisciplinary congress that covers the whole continuum of drug research and development, from target to market," Prof. DeBlois says.

Experts from around the world will gather in Montreal to share their knowledge, including:

- Patrick Couvreur of the Institut Galien Paris-Sud, renowned pioneer in the field of advanced formulation of drugs using nanoparticles. Professor Couvreur recently described a novel approach for developing nanopainkillers that last longer and are less addictive than opioids.
- Brian Shoichet of the University of California San Francisco. In the search for new drug structures, Professor Shoichet recently developed computational tools able to explore a chemical space 100 times larger than previously possible, bringing us closer to the first billion-compound virtual library for drug discovery.



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WHO launches 5-yr plan to improve quality of health products

Despite global progress, serious problem with health product quality and safety persist, particularly in lower and middle income countries. As a result, the WHO has launched a five year plan 'Delivering Quality Assured Medical Products for All 2019-2023'. The plan outlines work and activities to reach four main objectives: Strengthen country and regional regulatory systems – improving the functioning of regulatory authorities but also speeding up product registration timelines so that patients can get the product sooner, and facilitating cross border collaboration; increase regulatory preparedness for public health emergencies – equipping regulators with the knowhow to deal with emergencies, including by fast-tracking product approval process and improving crisis communication. Strengthen and expand WHO pre-qualification – WHO pre-qualification of priority health products has contributed to treating millions of people with quality, cost-effect HIV medicines, as well as to the vaccination of millions of children through Gavi, the Vaccine Alliance. It is now expanding



to include cancer medicines as the cancer burden grows in low and middle-income countries and increase the impact of WHO's Regulatory Support activities by aligning work across all levels of the organization, with particular attention given to countries' needs.



WHO prequalifies first biosimilar medicine for breast cancer treatment

WHO prequalified its first biosimilar medicine – trastuzumab – in a move that could make this expensive, life-saving treatment more affordable and available to women globally. Trastuzumab was included in the WHO Essential Medicines List in 2015 as an essential treatment for about 20% of breast cancers. It has shown high efficacy in curing early stage breast cancer and in some cases more advanced forms of the disease. The medicine, supplied by Samsung Bioepis NL B.V. (Netherlands), was assessed by WHO and found comparable to the originator product in terms of efficacy, safety and quality. The global average cost of trastuzumab from originator companies is \$20 000, a price that puts it out of reach of many women and healthcare systems in most countries.

WHO urges countries to invest in eliminating Hepatitis

WHO is calling on countries to take advantage of recent reductions in the costs of diagnosing and treating viral Hepatitis and scale up WHO, published in Lancet Global Health in July 2019, has found that investing \$6 billion per year in eliminating Hepatitis in 67 low-and middle-income countries would avert 4.5 million premature deaths by 2030 and more than 26 million deaths beyond that target date. A

total of \$58.7 billion is needed to eliminate viral Hepatitis as a public health threat in these 67 countries by 2030. This means, reducing new Hepatitis infections by 90% and deaths by 65%. By investing in diagnostic tests and medicines for treating Hepatitis B and C now, countries can save lives and reduce costs related to long-term care of cirrhosis and liver cancer that result from untreated Hepatitis.

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“We have been able to produce a large group of practitioners who have become more competent in treating Diabetes”



Prof. Dr. A K Azad Khan
President
Diabetic Association of Bangladesh
& Chairman
Board of Trustees
Bangladesh University of Health
Sciences (BUHS)



Please tell us in brief about the BADAS?

BADAS literally means Bangladesh Diabetic Association or Diabetic Association of Bangladesh. Diabetic Association of Bangladesh (BADAS) is unlike any other diabetic association in the world. Diabetic Associations in other countries are usually advocacy bodies; they do not organize care themselves but the founding father of BADAS took the view that to organize Diabetes care they have to develop care centers of their own.

In 50s, the care in the government hospitals were limited to episodic care suitable for communicable diseases, not for non-communicable life-long disease (NCDs) like - Diabetes, Hypertension etc. Virtually care for NCDs was non-existent because these need continued care, record keeping, patients' education or education of the family etc. Secondly, BADAS is a democratic body, and the leadership is elected and they have to be voluntary social worker and can not accept any financial remuneration for their services.

Thirdly, Diabetic Association has got no branch, in fact we cannot have a branch but we have affiliates. The District Diabetic Associations that we see in this country are independent Association. There can be more than one in a district and they are all affiliated with the main Diabetic Association. But, to be affiliated with us, they have to follow the same principle. They must be registered bodies, they must be owned by public, they must have elected leadership.

As an eminent physician of the country, would you please tell us about the prevalence of Diabetes in Bangladesh?

The prevalence of Diabetes in Bang-

ladesh has not been accurately estimated, because at the moment we don't have single number for a patient. Patients seen in one center may be counted as another patient in another centre. But the number estimated through different surveys and projected from there is about 9.3% of the adult population. But, if you consider the undiagnosed Diabetes patients, then the actual number will be much more than that. Last year, we screened more than one hundred thousand adult people (slightly older adults) and found a percentage of 25.6%.

One should know that the GDM (Gestational Diabetes Mellitus), pregnancy related Diabetes is also very high, the number seems to be more than 26% of the pregnancies. People with GDM have much higher chance of developing Diabetes in future. Not only that the children born out of GDM, also have chance to develop Diabetes. In addition, if GDM is not controlled, then not only the pregnancy is likely to get more complicated but also prevalence of Diabetes will reach even higher and children born will have higher chance to develop Diabetes.

Would you please tell us which group of people are more prone to Diabetes?

Diabetes is a disease that can affect people of all ages. Specially, Type-2 Diabetes which is more than 95% of all the Diabetes in our country. It is a combination of gene and environment. Unless, we are genetically pre-disposed, we don't get Type-2 Diabetes. If we have Diabetes genes, we will get Diabetes if environmental factors are diabetogenic.

So, people who are genetically predisposed they are likely to de-

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velop Diabetes if they are physically inactive and overweight. People will have the chance to develop Diabetes, if their parents or siblings have Diabetes. But, it does not mean that you are guaranteed to develop Diabetes, it means you have a greater chance of developing Type-2 Diabetes.

Do you think we have adequate medicine to treat Diabetes in Bangladesh? What is the global scenario?

At this moment all the medicines to treat Diabetes are available in Bangladesh. The question is about their affordability. A medicine may be working very well in a person but he may be unable to afford this medicine and have to choose the inferior one. Because of some economical problem, we prescribe inferior drugs for them.

If we see the global scenario, Diabetes has become an epidemic all over the world but this epidemic is rising faster in developing countries. It was recognized as an epidemic first by International Diabetic Federation and WHO. From 2006, it has been recognized as an epidemic by the United Nations. The facts which are not so appreciated, that this pandemic is more prevalent in developing countries than developed countries. Among all the causes of Diabetes, one of the important causes is lifestyle change, that's why people are getting obese as they are not doing enough physical activities.

As worldwide, Diabetes in our country is also increasing day by day alarmingly. What are your suggestions to combat it?

As I said before, Type 2 Diabetes is alarmingly rising but this is largely preventable. If we create awareness among the people, it can be prevented up to 60%-70%.

Diabetes is becoming epidemic because of the following reasons: urbanization, less physical activity, less walking, fast food/junk food, soft

drinks etc. Even in lower middle class families in the cities, children are getting obese, so we have to create awareness and mass movement.

I must say Govt. should also come forward to create awareness amongst people about leading a healthy lifestyle and also make common people cautious about the bad side of high calorie diet. Govt. can also take initiative to add nutrition values on food packaging. It will be also helpful for the common people, if Govt. take steps to build adequate walking space through footpath which is already a mess.

What is the role of lifestyle responsible for Diabetes in our country?

As I have already mentioned, that people should go back to natural food rather than fast food or calorie-dense food. Especially, I want to mention about the children, now-a-days, children are very much addicted to TV, internet, mobile. They hardly do physical exercise or sports. These habits should be changed.

How Hypoglycemia can be avoided in treating Diabetes with Insulin?

Hypoglycemia is a very important issue for Diabetes treatment because we know that even a person who develops Diabetes and if the Diabetes is not under control, then he may face many complications regarding Diabetes. Although, the treatment is quite expensive but the complications are even more expensive. You can bring Diabetes under control, but sometimes blood glucose level may fall down from the normal range that cause Hypoglycemia. In the body, blood glucose level is a very crucial factor, brain cell can only use glucose. During Hypoglycemia, a person may become unconscious. If blood sugar level is even lower, he will die.

You cannot make yourself Hypoglycemic, not by eating. Hypoglycemia

is not only related to food, it is related to drug or diseases. So, we must educate all Diabetes patients how to take medicines specially those who are very prone to Hypoglycemia and how to adjust the dose and avoid Hypoglycemia. Normally, our body produces insulin as much as needed. But if you give insulin from outside and you don't take your food or forget to take food, that insulin will react and ultimately you will get Hypoglycemia. If you exercise without taking food, you will also get Hypoglycemia. So to prevent Hypoglycemia, most important thing is the education of the patients about Hypoglycemia and how he can control Hypoglycemia.

As Diabetes is a chronic disease and lifelong medication is required, does it have any side effects? If yes, what's the remedy?

All medicines may have some side-effects. Over medication may cause side-effects. For a Diabetic patient, taking insulin which is a natural substance but proper dose should be maintained, it does not show any side-effect but over dose will cause Hypoglycemia. But, in case of taking other Diabetic medicine, may have side-effects which must be known. Also the doctors should advise the patients about proper medication and how to avoid the side-effects.

Please tell us, in brief, the role of DAB in research and training to enhance the skills of the physicians and ensure better diabetic management?

DAB programs include educating not only of patients, but also of doctors. You might have heard about our program on distance learning and educating doctors with certificate courses to treat Diabetes. We have been able to produce a large group of practitioners who have become more competent in treating Diabetes.

Leading the way from the front: Mucosal Immunology and Vaccine Sciences



Dr Firdausi Qadri

Senior Scientist & Head of Mucosal Immunology & Vaccinology Unit, icddr,b

Born in Dhaka in March 1951, Dr. Firdausi Qadri got admitted to the University of Dhaka in 1970 to study Biochemistry and Molecular Biology, moving away from the traditional trend of studying medicine, as her interest was always in Biomedical Sciences. She completed her Honours in 1975 and Masters in 1977. She then went to the University of Liverpool, United Kingdom in pursuit of her PhD in Biochemistry and Immunology. Unlike others, she preferred to return to homeland instead of staying back in the UK and joined the University of Dhaka as an Assistant Professor. In 1986, she started associating herself with icddr,b while doing her postdoctoral fellowship over there.

icddr,b has predominantly been involved in cholera research and it made Dr. Qadri interested to work there. At the icddr,b hospital, there were hundreds and thousands of cholera patients undergoing treatment and like other scientists at icddr,b, Dr Qadri was very much focused in understanding the disease to find a preventive solution. For treatment of diarrhoeal diseases including cholera, icddr,b had found oral rehydration solution (now known as ORS) as a miraculous treatment and is still saving millions of lives globally. Scientists at the icddr,b developed the ORS through its successful trial in Dhaka and Matlab, Chandpur in the late sixties and seventies. The British Medical Journal Lancet described ORS as "potentially the most important medical advance of 20th century". After the discovery of ORS the global scientific community were not much interested in cholera research. Dr Qadri's proposals in the field of cholera research did not get funded by donors and there were other ar-

reas that appeared to be more important. Dr Qadri had to switch her research focus towards bloody dysentery, which was another serious problem in Bangladesh and other developing countries. However, she never stopped her pursuit of understanding cholera and felt the need for prevention of this dehydrating diarrhoea which had such an epidemic potential. In 1990, a new serotype of *Vibrio cholerae* O139 emerged in the world. The global scientific community were at a loss. During 1990-91, Dr Qadri dedicated herself to work on this new cholera serotype to develop diagnostics and also to understand the disease better. The monoclonal antibody to *Vibrio cholerae* was developed using the hybridoma technology and the first kit for diagnosis of O139 was made. At that time, there was no vaccine available against this serotype of cholera. This discovery revitalised the importance of cholera research and scope of new funding surfaced. Dr. Qadri started to work on understanding the safety and



icddr,b's Hilton Humanitarian Award

immunogenicity of a prototype bivalent *Vibrio cholerae* O139 vaccine and published several articles.

Since then, Dr Firdausi Qadri has continued with her dream of eliminating some of the major infectious diseases from Bangladesh. Being a developing country, Bangladesh is challenged with unsafe water, poor sanitation and lack of hygiene facilities. The high density of population also amplified these challenges and created an environment prone to the spreading of food and water-borne infectious diseases such as cholera, typhoid and rotavirus induced diarrhoea as well as hepatitis.

Over the last decade, she has been leading the largest field studies in over 3 million doses of Oral Cholera Vaccine (OCV) in urban slums of Bangladesh as well as in Rohingya population in Cox's Bazar. This paved the way for introducing cholera vaccine in high risk people in the country and in humanitarian crisis locally and globally. It provided evidence of the success of affordable vaccines that work effectively in the real life situation. This was a milestone in Dr. Qadri's career.

Dr Qadri has also contributed to supporting the successful transfer of production knowledge relating

to the affordable Oral Cholera Vaccine from the International Vaccine Institute in Korea to one of our local pharmaceutical companies Incepta Ltd. She hopes that soon Incepta will be able to receive licensure from the Bangladesh DGDA and hopefully the World Health Organisation (WHO) prequalification that will contribute to the WHO's stockpile of OCV. From the stockpile, more than 50 million doses of OCVs have been dispensed in many cholera endemic countries of the world since 2013. That will begin a new era of vaccine development for Bangladesh and the world will be benefited immensely. Dr Qadri believes that in the days to come, more and more local pharmaceutical companies like Incepta will come forward to invest in human skill development, laboratory equipment production and research of new drugs and vaccines, and will thrive in the international market after meeting local demands.

Besides working on cholera research, Dr Qadri has also worked on Enterotoxigenic *Escherichia coli* (E. coli), ETEC and Typhoid vaccine, and has published over 300 of research articles. She hopes to introduce a very effective typhoid conjugate vaccine in Bangladesh soon.

Dr Firdausi Qadri, now a Senior Scientist and Head of Mucosal Immunology and Vaccinology Unit, Infectious Diseases Division at icddr,b is also involved in planning, implementation and setting up of research priorities in the field of vaccines and infectious diseases relevant to Bangladesh and other low and middle income countries to achieve Sustainable Development Goals (SDG).

Dr Qadri has received numerous awards for her achievements in the field of Natural Infections and Vaccines. These include the Gold Medal for outstanding research in Biological Sciences from the Bangladesh Academy of Science (BAS), Moselio Schaechter Award for scientific achievement by the American Society for Microbiology (ASM), Prof. C.N.R. Rao Prize for contribution in scientific research from The World Academy of Sciences (TWAS) and in 2019 the Kazi Mahbubullah Award for outstanding research in Vaccines and Infectious Diseases. She has been elected as fellow of many societies including ASM, AAM, TWAS, IDSA, BAS, INSA and serves Advisory Boards including the Islamic Development Bank (IsDB) Science, Biotechnology and Innovation Board.

Dr Firdausi Qadri was the first Asian Scientist and the first woman to have received the prestigious Christophe & Rodolphe Mérieux Foundation Prize from the French Academy of Sciences in 2012. With the prize money, Dr Qadri started an initiative named Institute for Developing Science and Health Initiatives (ideSHi) to create awareness, to strengthen capacity and empower innovations to make Bangladesh a leader in the field of Biomedical Sciences and Translational Research.

Dr Qadri still works 16 hours a day at her lab and at the fields. She spends much of her time on mentoring young researchers and scientists. She has become a role model for many young scientists and researchers of the developing countries. She is indeed a pride of the nation.

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‘The world is passing through an epidemic of Diabetes which is a matter of grave concern’



Prof. Dr. Zafar Ahmed Latif
Director General,
BIRDEM General Hospital



As a renowned physician of Bangladesh, would you please describe the prevalence of Diabetes in our country and what is the global scenario?

The world is passing through an epidemic of Diabetes. In Bangladesh, the rate of Diabetes is now about 7%-8% and 10% around the world. If we consider Diabetes & IGT (Pre-Diabetic condition) together we will find at least 1 person among every 5 person suffering from this problem. It is a matter of great concern that this epidemic is rising faster in the developing countries compared to the developed countries. This rise is mostly due to the change in our lifestyle. In the South Asian countries and the developing countries of the world, change in the life style is massive by manyfolds than any other developed countries. What is alarming is that the Pre-Diabetes patients are more in rural areas. Young generation is also being affected by Diabetes now-a-days. Childhood obesity is one of the causes of Diabetes.

What are the available treatment options and which is most effective?

Firstly, we should maintain and follow the proper food habit and physical exercise. Proper diet, drug and discipline are the three things which are very important for diabetic patients. When the sugar level is not controlled by life-style modification, only then we suggest the patient to take oral medication. If there is no other acute complication, usually after the use of tablet for 4-5 years, there is need for insulin. Because, at this stage insulin is the only helpful treatment for Diabetes

control. We can say in one word that insulin is the only effective drug for the diabetic patient.

Please give an idea about the recently updated Insulin that has lower chance of causing Hypoglycemia.

Hypoglycemia can be caused by all hypoglycemic agents, whether oral or insulin, as chance of hypoglycemia is a little bit more with conventional insulin. That's why patients feel reluctant to use insulin. Definitely, scientists are trying to improve and develop insulin which will cause less hypoglycemia. Modern invented insulin is more effective than the previous one. Till now, there is no insulin invented, which can be called as 'zero-hypoglycemic insulin'. However, less nocturnal hypoglycemia is found in the modern invented insulin.

As Diabetes is a chronic disease and longtime medication is required which has side effects, what do you suggest to prevent or minimise the side effects?

No medication or no chemical substance is devoid of side effect. So judicious use and minimum effective dose should be prescribed. This is applicable for not only Diabetes but also any other diseases, as most of the medicines are chemical products and chemical products will have certain type of mild to moderate to severe side effects. Also, the doctor should be aware of the side effects of the medicine. The doctor should also consider patient's condition to ensure that the side effects will not be lethal or harmful to the patients.

Diabetic patients
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What is the relationship between Hypothyroidism and Diabetes? How can we treat this?

There is no such direct relationship between Hypothyroidism and Diabetes. A patient with hypothyroidism may have Diabetes. Similarly a diabetic patient may have hypothyroidism. Hypothyroidism and Diabetes are two separate diseases but there may be an overlap with one another. But in case of certain condition, if the patient has hyperthyroidism, it may cause an elevation of blood sugar. In general, treatment for hypothyroidism will be separate and Diabetes will be separate. But it should be mentioned that, in certain condition in type 1 Diabetes, hypoglycemia may be associated.

Do you think that locally produced anti-diabetic drugs are of good quality and can meet our demand?

This is a difficult question. The quality should be good. As the Govt. gave them permission, the quality is supposed to be good. This is not possible for the doctors to check every matter or every chemical in that way. The Govt. should be vigilant to ensure the quality and other things.

Diabetes in our country is increasing day by day, what are your suggestions to combat it?

All the studies that are done so far, prove that 60% cases of Diabetes can be prevented by a simple lifestyle modification that is keeping the body weight in limit, being careful about diet and doing regular physical exercise.

How do you evaluate the role of BIRDEM in the management of Diabetes?

BIRDEM is a tertiary Diabetic Care Hospital. When the diabetic patients have intricate complications, then they come to BIRDEM for treatment. BIRDEM is a center of excellence, where different complications associated with Diabetes are treated under one roof. Patients are getting proper treatment here.

A Diabetic patient may have different types of complications of heart, eye, kidney, nerve etc. and so on. In other words, a Diabetic patient can have many diseases like other people. Except neuro - surgery and cancer treatment, BIRDEM has all the facilities to treat all common diseases. BIRDEM is a non-Govt. organization with partial support from Govt. It's not a commercial organization. Undoubtedly, BIRDEM is one of the best hospitals in Bangladesh.

DID YOU KNOW?

THE US TOPPED LIST OF MOST EXPENSIVE DRUG COUNTRIES

Across 50 countries around the world, a comparative study examined cost disparities for 13 medications. The U.S. topped the list as the most expensive drug country, followed closely by Japan. At the other end of the scale, Thailand was the most accessible access to the treatments.

In the study conducted by Medbelle, a London-based online healthcare network, 13 popular pharmaceutical compounds were chosen to compare their costs in different countries in euros, irrespective of whether they were protected by a healthcare system or paid for directly by patients.

Average prices were included for branded compounds and their generic versions so that each drug had a comprehensive profile. In order to make the costs equivalent, the dose-volume was also standardized.

ISPE Events – You can't afford to miss!

Event	Venue	Date
2 nd International Conference on Pharma Industry and Pharmaceuticals	Hong Kong	Jan 20–21, 2020
2020 ISPE Facilities of the Future Conference	San Francisco, USA	Jan 30–31, 2020
2020 ISPE Aseptic Conference & Training	North Bethesda, Maryland	Mar 02–03, 2020
EURODURG 2020 Conference	Szeged, Hungary	Mar 4–7, 2020
2020 ISPE Europe Annual Conference	Madrid, Spain	Mar 30– Apr 01, 2020
2020 International Society for Pharmaceutical Engineering (ISPE) Europe Annual Conference	Madrid, Madrid	Mar 30– Apr 02, 2020
ISPE Mid-Year Meeting	Orlando, Florida	Apr 18–21, 2020
ISPE Singapore Conference and Exhibition	Suntec City, Singapore	Aug 26–28, 2020
2020 ISPE Annual Meeting & Expo	Philadelphia, USA	Nov 01–04, 2020

Global Pharmaceuticals and Our Opportunities

THE SIZE OF GLOBAL GENERIC MARKET WAS 340 BILLION DOLLARS WHICH WILL REACH 475 BILLION DOLLAR BY 2024 ACCORDING TO THE MARKET INSIDERS. AS A NEIGHBOUR TO INDIA AND CHINA, BANGLADESH HAS THE OPPORTUNITY TO ENTER IN THE 475 BILLION DOLLAR MARKET OF GENERIC DRUG.

The number of global citizens has been increasing with the pace of time. Besides, the biodiversity of the earth is experiencing rapid changes in environment and ecological balance.

The food habit and lifestyle are going through changes having impact on human body. These factors are contributing to new types of diseases and viruses gradually. To fight the diseases, the scientists conduct regular research and the pharmaceutical entrepreneurs add new elements to medicines and the global market of pharmaceutical products is expanding as time passes; it is widely considered that the longevity of human lifespan will increase with the development of medical science in the future.

To lead a long life, aged people will have to be more dependent on medicines. We can predict a revolution of medicine and biotechnol-

ogy in the near future alongside technology-driven fourth industrial revolution. As a result, the global market of pharmaceutical products will get ultimate expansion.

The pharmaceutical sector maintained a global market size of 1.2 trillion dollar in 2018, according to World Health Organization and Harvard Business Review. The market grew by around 5.8 per cent than in the previous year.

The pharmaceutical industry's global market valuation was 390 billion dollar in 2001 and the sector experienced rapid growth in the last 19 years. Except the information technology sector, pharmaceuticals had maintained maximum growth than other sectors in the last two decades.

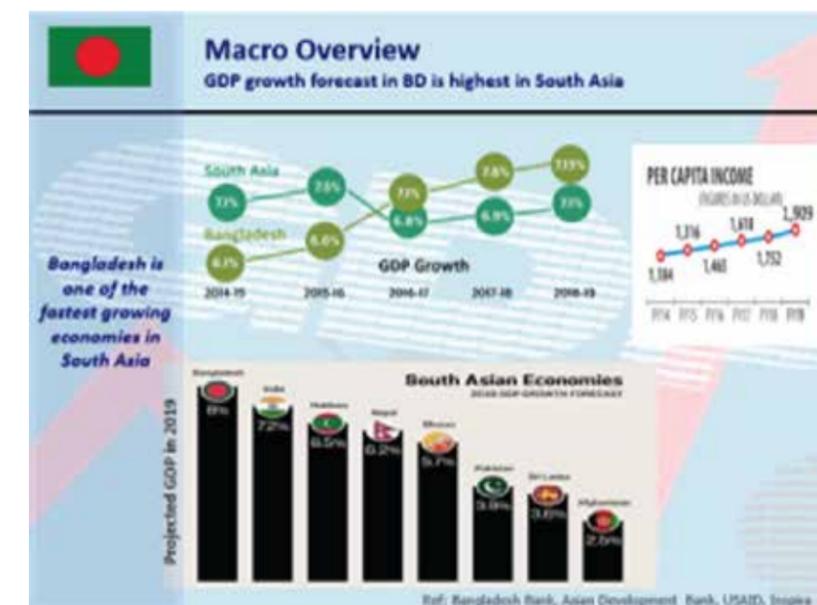
The industry has to maintain standard including - modern technology adaptation, increasing research allocation, infrastructure

development cost and strong competition. Thus, the entrepreneurs must have regulatory support from the Government to face new challenges to keep standard in the medicine market.

Mckinsy and Company suggested that the North America and Western Europe territories consume half of total production volume in global pharmaceutical sector. Around 1 billion people in the territories consumed 56 per cent of global medicine while 44 per cent products was consumed by the remaining 650 crore people living in other parts of the world. The third growing market is the Asia Pacific regions where buying capacity of people in line with emerging economic development will increase.

Market analysts predict an 8.4 per cent growth in upcoming fiscal of 2020-21 in Asia Pacific region with increasing trends in gross domestic product (GDP) growth, government allocation and knowledge management.

The medicines which have re-



cently completed patent rights period, rapid growing drugs become upgraded to generic grade in the widely expanded markets. India and China have exploited the opportunities to market the expired patent products as generic drugs to the global markets.

The size of global generic market was 340 billion dollars which will reach 475 billion dollar by 2024 according to the market insiders. As a neighbour to India and China, Bangladesh has the opportunity to enter in the 475 billion dollar market of generic drug. To realise the opportunity, Bangladesh has to formulate special policy for medicine sector along side of taking several joint initiatives in public private sector.

As the regulatory compliance is different here, the Government has to formulate long-term strategy in participation of industry people, academics and researchers to grab the future opportunities.

Bangladesh has low cost workforce and LDC access. However, the country is lagging behind in other factors in global market. Bangladesh will lose the waiver under In-

tellectual Property Rights in 2024, when the country marches towards a developing one. The Government has to take strategy within this time to face the next challenges.

The generic bio-logic or bi-miller drugs will become popular in future. Experts prescribe biologic drugs in case of some chronic diseases. The global market of biologic drugs has been increasing as the market size was 4.49 billion dollar in 2017. The market will reach 24 billion dollar by next five years.

In a recent interview with the BBC, Global Pharma Expert Prof Kees de Joncheere mentioned that the pharmaceutical industry has served as well in term of developing good news medicine, but in the past 10-20 years, there has been very little breakthrough in innovation.

So, scientists have predicted that the Bio-technology will contribute to the development of future of medical science. The developed countries have already begun large scale investment in research and development in the sector to catch the future businesses. Many old medicines will be replaced by new

Short Profile of KSM Mostafizur Rahman



KSM Mostafizur Rahman, CIP
Managing Director
One Pharma Ltd &
National AgriCare Group;
Bangladesh

KSM MOSTAFIZUR RAHMAN, a renowned Economist and Business Investment Analyst, is an experienced business professional with more than 20 years of experience emphasizing on formulation of strategic project planning, management, implementation in various diversified industry as Agriculture, Pharmaceuticals, Information and Communication Technology and so on. He is a business solution architect & sharpened management executive who successfully built a thriving company that showed an accelerated business expansion in diversified areas.

Rahman has been awarded several times from both Government and National arenas:

- ✓ President's Industrial Development Award-2014
- ✓ Commercially Important Person (CIP) Award-2013
- ✓ Krishi Biplob Sanmannona Puroshkar-2009
- ✓ Krishi Bangla Award-2009
- ✓ Sabuj Biplob Award-2007

With the successful business expertise, he has established several successful business entities in diversified sectors:

- ✓ One Pharma Ltd.
- ✓ One Information and Communications Technology Ltd.
- ✓ One Seeds Ltd.
- ✓ National AgriCare Import & Export Ltd.

- ✓ National AgriCare Hybrid Seeds Ltd.
- ✓ National AgriCare & Youngsun Mfg. Cor. Ltd.
- ✓ National AgriCare Solar Power Ltd.
- ✓ National AgriCare Accessories Ltd.
- ✓ China Gardency Developers Ltd.
- ✓ Sayed Momena Montaj Foundation (a nonprofit organization)

In academic credentials Rahman is a Graduate in Agriculture, an MBA in Marketing and also achieved successful professional degrees from National and International Institutions.

ones which would give better results.

According to a recent article in Science Daily "Sequencing of human genome and the development of powerful and affordable DNA sequencing technologies has ushered in a new era of precision oncology, in which patients are treated with customized therapies designed to target the specific mutations with their tumour".

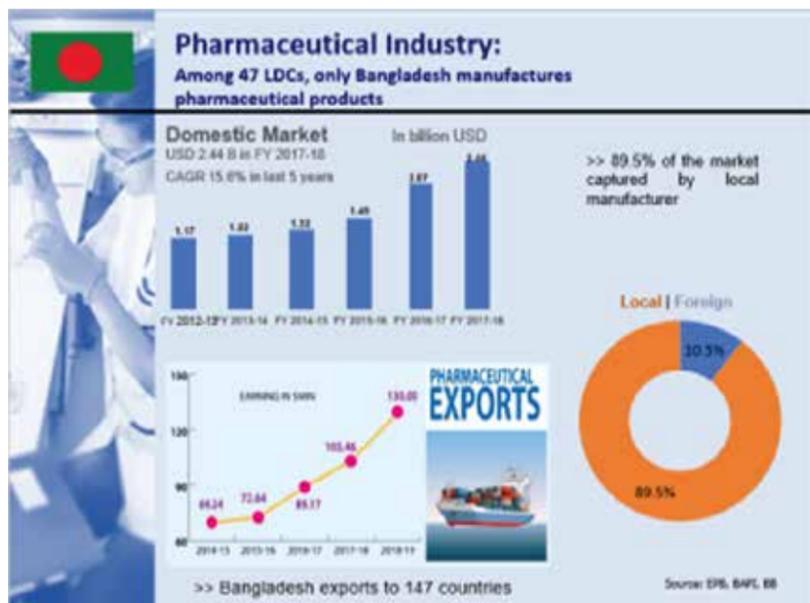
Companies that can design drugs that target disease at the molecular level while minimizing off target side-effects and consider structural pharma cogenomics could transform the structure of the pharmaceutical industry to cure disease with a significant level of precision.

Bangladesh has been exporting medicine to developed countries keeping global compliance. We have provided 98 percent medicine of local demand. The Bangladesh local medicine market is now worth of Tk 22,000 crore which will be doubled by 2024.

Bangladesh exports drugs to 150 countries after fulfilling local demand. Local business-friendly policy, public-private cooperation, skilled workforce, patent rights waiver contributed to the growth.

Our raw material and machinery are fully depended on imports, which is a big challenge for us in the global market. However, the government has already taken certain initiative for promotion of the pharma industry in the area of local consumption as well as export. Honourable Prime Minister has declared "Pharmaceuticals as Product of the Year-2018". This announcement is definitely a milestone for the pharma industry. In other words, this is the recognition of the pharma sector's significant contribution of the country.

Government has taken initiative to make the pharmaceutical industry self-sufficient in producing raw materials as well. Bangladesh now



THE GOVERNMENT HAS DECLARED THE PHARMA SECTOR AS THE THRUST SECTOR IN BANGLADESH WITH AN AIM TO DIVERSIFY COUNTRIES EXPORT PORTFOLIO. FURTHERMORE, THE GOVT. HAS DECLARED 20% CASH INCENTIVE FOR EXPORT OF RAW MATERIALS & 10% CASH INCENTIVE FOR EXPORT OF FINISHED FORMULATIONS.

relies on imports of raw materials as more than 90% raw materials are being imported every year. Keeping this in mind, the Govt. has established Active Pharmaceutical Ingredient (API) Industrial Park and the Pharmaceutical Companies would be able to source at least half of their raw materials from the complex reducing reliance on imports.

The government has declared the pharma sector as the Thrust Sector in Bangladesh with an aim to diversify countries export portfolio. Furthermore, the govt. has declared 20% cash incentive for export of raw materials & 10% cash incentive for export of finished formulations.

Extended waiver for the Least Developed Countries (LDC's) by WTO Council for Trade Related Aspects of Intellectual Property Rights (TRIPS) would definitely usher a new era in the area of producing formulation on large scale basis.

Now, with government's focus and emphasis on local raw materials manufacturing required for medicines we do look forward to even better days and expect the emergence of a new tiger in global pharmaceuticals sector.

DID YOU KNOW?

- Nearly 80% of people with Diabetes live in low- and middle-income countries. Asia and the eastern Pacific region are particularly affected: in 2011, China was home to the largest number of adults with Diabetes (i.e. 90.0 million, or 9% of the population), followed by India (61.3 million, or 8% of the population) and Bangladesh (8.4 million, or 10% of the population).
- The International Diabetes Federation (IDF) Middle East and North Africa Region has the highest age-adjusted prevalence of Diabetes in adults in 2019, 2030 and 2045 (12.2%, 13.3% and 13.9% respectively). The IDF Africa Region has the lowest age-adjusted prevalence in 2019, 2030 and 2045 (4.7%, 5.1% and 5.2%), which can be partly attributed to lower levels of urbanization, under-nutrition and lower levels of overweight and obesity. However, the number of people with Diabetes in this Region is expected to increase in 143% by 2045 – the largest percentage increase of all regions over that period.
- The Region with the highest estimated number of Diabetes-related adult deaths is the IDF Western Pacific Region, where 1.3 million deaths are due to Diabetes each year. This is followed by the IDF South-East Asia Region, with 1.2 million deaths. The Region with the lowest number of Diabetes-related deaths is the IDF South and Central America Region (0.2 million).

ARTIFICIAL INTELLIGENCE IN HEALTHCARE MARKET 2020

Global Industry is expected to reach US\$15bn mark by 2025

Global artificial intelligence in healthcare market has drastically improved management functions for the healthcare sector. It has ardently worked toward reducing the gap between patients and healthcare practitioners over the years. Analysts expect that the market is also expected to rise due to increasing government spending on healthcare sector and development of sophisticated healthcare applications by private companies. Incorporation of artificial intelligence is aimed at improving the discrepancies in patient care.

In 2018, the global artificial intelligence in healthcare market stood at US\$1 bn approximately and is expected to surge to US\$15 bn approximately by the end of 2025. During the forecast of 2019 and 2025, the market is projected to exhibit a CAGR of over 4%.

Increasing Use of AI in Healthcare for Day-to-Day Health Monitoring To Fuel Market:

Growth of the global artificial intelligence in healthcare market remains assured as AI applications promise better management tools to hospitals and patients. Accuracy and efficiency in functions such as in-patient care, hospital management, medical imaging and diagnosis, and research and drug discovery with usage of AI in healthcare is expected to bode well for the global market. Ability to personalize medications has also been identified as a key factor fueling global

market. The report also states that quick diagnosis, better health monitoring, and customized diet plans for patients will be value additions to improving patient care with AI. Wearable devices and virtual assistants, developed using AI, are also anticipated to provide the market lucrative opportunities during the forecast period.

Asia Pacific to Grow due to High Adoption of AI in Healthcare Sector:

Asia Pacific is expected to grow during the forecast period due to emerging economies such as China, India, and Japan, which are reporting high adoption of AI in healthcare sector under government initiatives. The increasing investment in healthcare sectors in this region is also expected to drive the demand for artificial intelligence in healthcare market. North America is expected to maintain the lead in the near future.

This report focuses on the top players in the market such as Atomwise, Deep Genomics, General Electric (GE) Company, Intel Corporation, Microsoft Corporation, General Vision, Enlitic, Recursion Pharmaceuticals, Sention, Bay Labs, Koninklijke Philips, Nvidia Corporation, Zephyr Health, Google, IBM Corporation, Siemens Healthineers, Johnson & Johnson Services, Medtronic, Stryker Corporation, Careskore, Next IT, Welltok, Icarbonx, Oncora Medical, and Cloudmedx.

Source: onedigitclick

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In terms of Diabetes treatment, Bangladesh is ahead compared to other countries



Prof. Md. Farid Uddin
Founder Chairman & Course Coordinator
Dept. of Endocrinology
BSMMU, Dhaka

What are the common Endocrine disorders in our country? Is there any relationship between Type 2 Diabetes and Obesity?

When there is any disorder in Endocrine System, it may be seen from outside. For example, like Diabetes, there are other complications which are related to Endocrine Gland.

- Firstly, most common Endocrine Disorder is Diabetes.
- Secondly comes Thyroid Disorder.
- Thirdly Obesity and Metabolic Syndrome
- Fourthly Polycystic Ovarian Syndrome (PCOS).
- Osteoporosis, infertility, growth disorder, pubertal disorder, hypertension in young age, all are endocrine problems.

playground and walking places. All of these are leading us towards Obesity and Diabetes.

Apart from this, genetically, Bangladeshi people are Diabetes prone, for example, in our country GDM rate is high around 20%-30%.

What are the available treatment options and which is the most effective one?

All types of Diabetes treatment are available in our country. The options are of two types:

- Non-Pharmacological
- Pharmacological

Diet, Exercise, Education, Motivation are Non-Pharmacological part. Diabetes can be prevented & controlled through maintaining proper diet & exercise.

Education is the most vital part of Diabetes management. Patients' family, friends, even the policy makers should also be included in the education.

You will be happy to know that, to highlight the Non-Pharmacological treatment and patient management, we organize a session for our Indoor patients. In the Outdoor unit, every Tuesday, we take classes on Non-Pharmacological treatment from 12 to 1pm.

We have all the treatment facilities to combat Diabetes in our country. Despite being a poor country, we never had Insulin shortage. Even the latest Insulin device, Insulin pump are also available in our country.

In terms of Diabetes treatment, Bangladesh is ahead compared to other countries. Behind this, Professor Ibrahim & his successors have a huge contribution.

Among the top 10 countries having Diabetes, Bangladesh is one of them. We assume, 1 crore people are having Diabetes and 1 crore are pre-Diabetic. Diabetes can affect eyes, kidney, heart, brain, nerve & any vital organ.

Now-a-days, Osteoporosis is very common among the elders.

There are many risk factors for Osteoporosis. One of the risk factors is that the young generations are using steroid tablet to keep them healthy.

Approximately 50% of elderly people have Osteoporosis.

Obesity is directly related to Diabetes. According to a survey, between 20% - 30% of children are obese.

Due to urbanization, the physical activity is becoming lesser. Due to economic transition, life-style is changing because of junk food consumption, unavailability of school

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What are the latest Insulin therapies available in the country to control blood sugar for a long time?

All kinds of Insulins are available in our country including even Insulin pump. Once you fix a pump, you can use it for 3 to 5 years, but it's costly. Insulin given once a week is in the pipe-line of the Govt. plan. After the Govt.'s approval, it will be available in our country.

Hypoglycemia has been a nightmare to the Insulin users and doctors are always aware of this. What do you advise to manage it?

All the Diabetic patients have the risk of "Hypoglycemia". Lack of education is the vital cause of Hypoglycemia. We prescribe Insulin to the patient but we don't explain how Hypoglycemia can be prevented.

If we give the proper knowledge of Hypoglycemia to the patients, even he can fast by taking Insulin during Ramadan without having any problem.

The main tips for preventing Hypoglycemia is to take proper diet. So, the combination of diet, drug & discipline are the most important

steps to manage Hypoglycemia.

The first main reason of Hypoglycemia is the missing meal, the second reason is the overdose of Insulin. We should also keep the parameter of Insulin syringe properly as wrong injecting technique may cause Hypoglycemia.

How can 'early insulinization' help to control Diabetes?

Early Insulinization is a very vital issue. The earlier the insulin is given, the better it is. When the high blood sugar level is not controlled by tablet, patient must be given insulin immediately. It is seen that if the patients who have high blood sugar initially, and take "Early Insulin", then there will be less complications.

Do you think that the lifestyle of the people of Bangladesh is one of the reasons behind Diabetes?

We are taking high carbohydrates without any physical activity and we have less facility to exercise. In our diet chart, we should cut down on carbohydrates. We should also take fruits and vegetables and avoid fast food. We should have fi-

ber contained diet and eat less rice, which is a carbohydrate. Also, we should have more protein in our diet. We should return to a healthy life-style. We need to raise awareness from the grass root level and educate the whole family.

As a Founder Chairman, please tell us whether BSMMU has all the treatment facilities for Diabetes & endocrine disorders?

From the very beginning, we are trying to build a proper Center for combating Diabetes with the best treatment in BSMMU. We have our own outdoor unit. There our consultants serve 300-400 patients. Among all the indoor patients, 30%-40% patients are Diabetic. In our 2000 bedded hospital, almost 200 are Diabetic patients. To serve them, we have all the required facilities.

On every Tuesday, from 11 a.m. to 1 p.m, patients are educated regarding Diabetes complications and Insulin technique. In BSMMU, we emphasize the importance of primary education to the patients. Also, Endocrine department is giving service to other problems efficiently and with dedication.

DIA EVNTS – You can't afford to miss!

Event	Venue	Date
Pharmacovigilance and Risk Management Strategies Conference	Washington, USA	Jan 27–29, 2020
Regulatory Submissions, Information, and Document Management Forum	North Bethesda, USA	Feb 10–12, 2020
DIA Advancing Complex Innovative Clinical Trial Designs to Efficiently Deliver Medicines to Patients	Silver Spring, USA	Mar 02–03, 2020
Advertising and Promotion Regulatory Affairs Conference	Washington, USA	Mar 12–13, 2020
DIA Europe 2020	Brussels, Belgium	Mar 17–19, 2020
Medical Affairs and Scientific Communications Forum	Marriott, Anaheim, USA	Mar 23–25, 2020
Digital Technology in Clinical Trials	Boston, UK	Mar 30 –31, 2020
Global Labeling Conference	Hyatt Regency, USA	Apr. 20–21, 2020
DIA Biostatistics Industry and Regulator Forum	Washington, USA	Apr 22–24, 2020
DIA 2020 Global Annual Meeting	Washington, USA	Jun 14–18, 2020,
Real World Evidence Conference	Broadway, San Diego, USA	Nov 09–10, 2020

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“We can confidently say that nobody needs to go abroad for the management of Diabetes”



Dr. SM Ashrafuzzaman
Professor & Head
Department of Endocrinology
BIRDEM, Dhaka

As a renowned physician of Bangladesh, would you please describe the prevalence of Diabetes in our country and what is the global scenario?

According to the International Diabetes Federation news (IDF):

Bangladesh is one of the 6 countries of the IDF SEA (South East Asia) region. 425 million people have Diabetes in the world and 82 million people in the SEA Region; by 2045, this will rise to 151 million. There were 6,926,300 cases of Diabetes in Bangladesh in 2017. Latest news is that, Diabetes affect 463 million adults in 2019 according to IDF. Total adult population :100,113,000. Prevalence of Diabetes in adults :6.9%. Total cases of Diabetes in adults:6,926,300.

According to WHO, its global prevalence was about 8% in 2011 and is predicted to rise to 10% by 2030. The prevalence is increasing in Bangladesh also. The estimated prevalence is 8.7% (Age 20-79 years of population).

According to others, the prevalence of Diabetes Mellitus in Bangladesh is 10%. About eighty Lacs (8 million) people are suffering from Diabetes. Only 50% know that they have Diabetes. More alarming is that, equal number or more are in preDiabetes state. They will be diabetic if awareness and prevention program fails.

World Diabetes Day has recently been observed. As the world's largest hospital in treating Diabetes, what is the standard of treatment in your hospital?

The theme for Diabetes awareness month and World Diabetes Day 2019 (14 November) is Family and Diabetes. Bangladesh Diabetes Association (BADAS), BIRDEM, all the affiliated centers of BADAS, other non-govern-

ment as well as Government organizations, also tremendously observed the Day this year. They hold Rally, Camp, Free screening, awareness program, talk show in different TV and other print or electronic media including FM radio. I myself attended Radio ABC FM 89.2 for a live one-hour program on this occasion.

Regarding the standard of treatment in our hospital it is acceptable. It is the best in the country in respect to Diabetes. Even then there are many aspects where we can improve to reach the world standard. I think it is a pleasure that, we can confidently say that nobody needs to go abroad for the management of Diabetes. We can give World class management of Diabetes in our country.

Is there any link between Diabetes and Hypertension?

Yes. There is a strong relation between Diabetes and hypertension (HTN). Persons having Diabetes eventually may develop HTN or Hypertensive patients may be diagnosed as Diabetics in course of time. So, all Diabetes should be checked for high blood pressure in each visit by the physician as well as all hypertensive subjects should have screening for Diabetes once yearly preferably by OGTT.

How Hypoglycemia can be avoided in treating Diabetes with insulin?

Hypoglycemia or Low blood glucose (<3.9 mmol/L or <70 mg/dl) is important and not uncommon complications of Diabetes management. It can be lowered by proper diabetic education to the patient (Subject). To follow the instructions of diet in due time and quantity, less Hypoglycemic medicine (newer Oral or Insulin or

According to-



Metformin is the first line treatment option for **Type 2 Diabetes management**

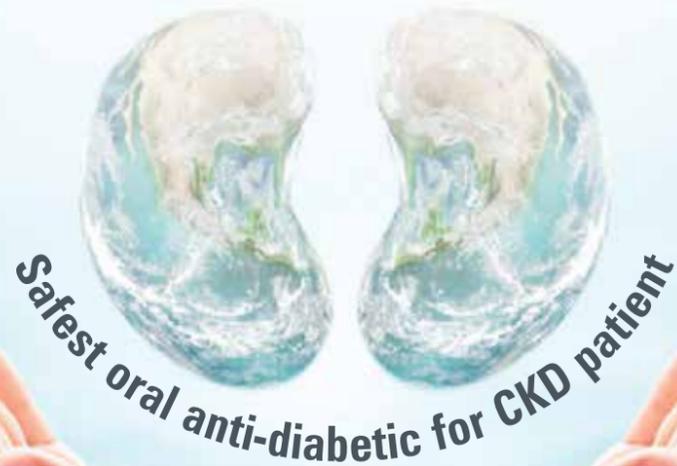


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Combination) and regular monitoring with frequent adjustment of the dose particularly Insulin. Among the various types of insulin some of them has less Hypoglycemic property.

Please tell us in brief about Neonatal Diabetes Mellitus (NDM) and its management.

Very important question. Role of BIRDEM in the management of Diabetes is tremendous and highly appreciated by the GOB, international agencies as well as all over the world. BADAS (Bangladesh Diabetic Somity) is founded by Late National Professor Md Ibrahim in 28 February 1956. Every year the day is celebrated with dignity as "Diabetes Sheba Dibosh".

It is now largest NGO of the World in the management of Diabetes under the leadership of Prof AK Azad Khan, President BADAS.

It has now expanded its service throughout the country though more than 110 Affiliated centers and more than 30 hospitals. We have NHN, BIHS, BUHS, HCDP, RVTC, ICHRI.

Moreover, BADAS is working for manpower development of IMC and BADAS Nursing Institute, DLP (Distance Learning Program). BADAS is giving huge support to the poor diabetic patients and children with Diabetes. So, many more services yet to mention of BADAS in the field of Diabetes.

How do you evaluate the role of BIRDEM in the management of Diabetes?

We don't have any data to show head to head comparison with the foreign institute. But we are giving standard care for the management of Diabetes. We have standard infrastructure, Logistics of all world standard type of medication for Diabetes & manpower. BADAS has MoU with Nepal, Bhutan etc to train manpower and to cooperate their government for development of Diabetes care through "Ibrahim Health Care Model". So, me as well as we are proud of the BADAS as well as other Governmental and Autonomous (BSMMU & Others) institutes who are serving diabetic subjects in the country.

MYTH VS REALITY

MYTH: 34% believe that women are more prone to Diabetes

REALITY: Studies have indicated that Type I Diabetes does not show a female bias. The overall sex ratio is roughly equal in children diagnosed under the age of 15. However, while populations with the highest incidence all show male excess, the lowest risk populations mostly of non-European origin, characteristically show a female bias.

MYTH: 52% are sure that Pre-Diabetes cannot be cured

REALITY: Early treatment can actually return blood glucose levels to the normal range. In fact, you will not develop type 2 Diabetes automatically if you have pre-Diabetes.

MYTH: Wearing an insulin pump will interfere with daily activities

REALITY: Insulin pumps can be easily worn on or under your clothes very securely. There are a variety of cases and clips available to wear with the pump. The pump can also be disconnected from the body for up to an hour for activities like swimming, showering, exercise and other activities you enjoy, so it won't stop you from living your life.

MYTH: Type 1 Diabetes is just diagnosed in childhood

REALITY: The peak age for diagnosis is in between 9 and 14 but you can be diagnosed as a young child or adult. 90 per cent of people with Type 1 Diabetes are

diagnosed before the age of 30 but that still means there will be many people getting diagnosed later in life. Although age is a risk factor for Type 2 Diabetes there is no age restriction for diagnosing Type 1. A detailed history of symptoms and onset may be useful.

MYTH: There's no point testing someone for Type 2 Diabetes if they're not overweight

REALITY: Don't underestimate the power of a detailed history. Yes, the majority of people who are diagnosed with Type 2 Diabetes are overweight but some people are not. Their age, family history, ethnicity may all be factors in them developing the condition. It's important that Type 2 Diabetes is diagnosed as soon as possible in order to help prevent the serious complications that undiagnosed Type 2 can result in.

MYTH: You need early morning urine to check for kidney function

REALITY: As part of an annual health care review people with all types of Diabetes should have a blood and urine test. The urine will be checked for 'microalbumin'. Alongside this, a blood test will measure urea, creatine, and estimated glomerular function (eGFR) showing how well the kidneys are working. Interpretation should be based on clinical appearance. Early stages of Diabetes-related kidney disease is likely to be asymptomatic, which stresses the need for annual screening. Smoking state and a dietary review should be part of a kidney health review.

Generic Drugs and Global Deception

Generic drugs are supposed to be equivalent to brand-name drugs, but all too often they are defective. Katherine Eban's book shows that corrupt overseas manufacturers have committed intentional global fraud. The system is broken and the FDA lacks the power to correct abuses.
 – Harriet Hall

I always thought generic drugs were the best choice. They were tested and proven to be equivalent to the brand name originals and cost much less. But I never imagined that some of the data the FDA relied on had been doctored as part of a global pattern of deception. The book *Bottle of Lies: The Inside Story of the Generic Drug Boom* by investigative journalist Katherine Eban is an eye-opener. The unfortunate truth is that generic drugs can't always be trusted: some of them are ineffective or even deadly.

The FDA has a worldwide reputation as the "gold standard" for regulatory bodies. It regulates about one-fifth of the US economy, safeguarding public health by ensuring the safety of food, drugs, medical devices, pet food, and veterinary supplies. It has had an admirable track record, for instance when it refused to approve thalidomide. But the generic drug revolution exposed some serious flaws in the system.

AIDS drugs used to cost \$10,000-15,000 a year in the West, but Cipla was soon offering the same drugs to Doctors Without Borders for \$1 a day in the rest of the world. The Ranbaxy company in India agreed to sell the drugs for 38 cents a day. They won FDA approval, but a company employee, Dinesh Thakur, discovered an appalling culture of deceit and eventually became a whistleblower despite threats to his career and his family. Thakur found that Ranbaxy submitted false dossiers to the FDA, invented data, altered or discarded records, faked dissolution studies, and cheated in every possible way. Astoundingly, the company's head



of analytical research told an auditor "It is not in Indian culture to record the data while we conduct our experiments." Their manufacturing standards boiled down to whatever the company could get away with. In India, "you could almost always make a problem go away, whether through strategic payments or the threat of force."

The FDA aimed to inspect every facility making drugs for the US market every two years, but by 2009 the number of overseas facilities had skyrocketed to over 3,000. The FDA lacked resources and the actual rate of inspections was closer to once per decade. Inspections of foreign plants were announced ahead of time, losing the surprise element and facilitating Potemkin village-like cover-ups by the company. Language barriers were a problem, but clever investigators were still able to find clues in computerized records. They learned not to let the companies show them the facilities but to demand to go

wherever they wanted. There was bias and coercion, and orders were often given to downgrade findings prior to release. A secret report within the company revealed such incriminating information that the cover page carried the warning "Do not give to the FDA". (But the FDA got a search warrant for the company's New Jersey facilities and obtained the offending document as part of their haul.) The whistleblower's information showed that the top executives of India's biggest pharmaceutical company had committed intentional global fraud. Such widespread corruption was so hard to believe that his information was distrusted, and he had to hire a lawyer to protect himself.

The companies were creative about explaining away discrepancies and missing data. They showed a blatant disregard for the law and lied to the inspectors' faces. They said it was a cultural thing. They knew they could get away with it. Eban says, "it seemed that Ranbaxy was better at

making excuses than it was at making drugs." There was great pressure to make cheaper drugs available to the public, and sometimes it seemed that Ranbaxy was too big or too important to fail. Ranbaxy had manufacturing plants in 11 countries and sales in 125 countries. There were political concerns, with fear of damage to international relations. The FDA had no police power, no jurisdiction in foreign countries. The worst they could do is impose an Application Integrity Policy (AIP) to halt all review of a company's applications pending review by outside auditors. For various reasons, they found it difficult or impossible to invoke that penalty.

Joe Graedon, co-author of the syndicated column *The People's Pharmacy*, initially told his readers they could trust generic drugs, but changed his tune when he became aware of the evidence of harm. For instance, there was an epidemic of bad reactions to

contaminated heparin from China, organ transplants failed when tacrolimus generics produced inconsistent blood levels, and cardiac drugs dumped overdoses into the bloodstream by dissolving too fast. A generic version of the statin drug Lipitor was found to contain tiny shards of blue glass, never adequately explained. Defective drugs were supposed to be destroyed, but often the company just resold them in another market. Africa became a dumping ground for defective drugs, and Africans died. An American doctor working in Rwanda coined the term "The Lazarus Effect:" dying patients suddenly recovered when switched from a generic to a brand-name drug.

There were reports of bad odors and foreign objects in generic pills, from eyelashes to insects. A woman in New Jersey was about to take her daily capsule for high blood pressure when she saw a flash of movement.

A small, centipede-like bug was stuck halfway inside the capsule and was wriggling to free itself. There were sporadic regulatory successes: Ranbaxy pled guilty and paid heavy penalties, but the responsible executives were not punished and moved on to wreak havoc at other companies.

Conclusion: the FDA system for regulating generics is broken

One might hope that exposure of these problems would lead to solutions, but the problems remain. The FDA didn't even learn its lesson about surprise inspections. In 2016, they agreed to stop unannounced inspections and to notify India's companies in advance.

I get my medications from the Department of Defense system, which consistently chooses to stock the least expensive generic version. Now I'm worried. If you're not worried, I urge you to read Eban's book.

Source: Science-based Medicine

INDEPTH

Increasing Insulin Supply and Lowering the Cost of Insulin

Insulin is certainly a wonder drug. It has saved millions of lives since it was discovered nearly a century ago. But there is a problem. Insulin can be expensive — so much so that people have died because they can't afford it. According to a recent study by Health Action International, "access to insulin is beyond the reach of millions of people with Diabetes around the world."

To address this problem, the World Health Organization (WHO), has just announced a pilot program aimed at increasing the supply of insulin worldwide. One of the main reasons for the high cost of insulin is that it is largely made by three major manufacturers. In the initiative, which will be rolled out over the next two years, WHO will use its Prequalification program to encourage manufacturers of generic insulin to have WHO assess their products.

The WHO originally launched its Prequalification project in 2001 to expedite access to medicines that

met certain standards for HIV/AIDS, malaria and tuberculosis, but it has since expanded to include other therapeutics. Manufacturers who want their medicines to be put on the prequalified products list need first to apply and then to allow assessment teams to evaluate their products for safety, quality and effectiveness and to inspect their manufacturing sites. With this newly announced initiative, makers of generic insulin can now participate in the process. According to WHO, "Prequalifying products from additional companies will hopefully help to level the playing field and ensure a steadier supply of quality insulin in all countries."

While announcing the inclusion of insulin manufacturers in the Prequalification program, the WHO also said that it was exploring other Diabetes projects, such as updating treatment guidelines, developing price-reduction strategies and improving delivery systems.

Source: Diabetes Self-Management

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Prof. Dr. Khwaja Nazim Uddin
Professor of Medicine
BIRDEM, Dhaka



As a renowned physician of Bangladesh, would you please describe the prevalence of Diabetes in our country and what is the global scenario?

The prevalence of Diabetes is increasing in our country. Now, one in eleven of the world’s adult population is living with Diabetes. According to the statistic of 2017, 425 million people are suffering from Diabetes. In Bangladesh, so far, more than 1 crore people are suffering from Diabetes. In case of densely populated countries like India, Brazil, Saudi Arabia, America, almost 12% people are suffering from Diabetes. Main difficulty is 1 in 2 persons are undiagnosed. Almost 70% Diabetic patients’ blood glucose level remain untested.

Diabetes is not a disease of rich people anymore. Low income group is equally vulnerable. 1 in 6 women are having high sugar during their pregnancy. Children are also getting Diabetes registered day by day. Another major concern is Type-2 Diabetes in young adults. Type-2 Diabetes is treated with tablets and Type-1 is treated with insulin.

What are the available treatment options and which is most effective?

Diabetes is mainly treated in 3 ways, firstly, lifestyle changes; lifestyle changes by maintaining proper diet and physical exercise, secondly, education and monitoring and thirdly, by Drugs. You can treat hypertension by medicine only. But you cannot treat Diabetes with only medicine.

There are 2 types of medication we all know. One is tablet, another is injection.

Diabetes is treated by maintaining 3 things, diet, discipline and drug. Now, initial medication is metformin. It depends on the blood sugar level. This is not only the fasting blood glucose or the glucose level after breakfast. It is the average of 3 months’ blood sugar level. It’s also called HbA1c (Hemoglobin A1c). If someone has an HbA1c level of 6.5, fasting blood glucose level of 7 or more and after breakfast 11.1 or more, then he is Diabetic and needs Metformin.

Regarding insulin, doctors don’t want to give insulin. Patients also don’t like to take it. But, whenever needed, you have to take it. In case of insulin deficiency, insulin is the only effective medication and if indicated, early initiation is best.

What are the latest Insulin therapies available in our country to control blood sugar for a long time?

Insulin has a history of 100 years though, the molecule still remains the same. Still there is no commercial tablet. So, injection is the best way. Now, we have devices to deliver insulin into the body. It has small needle and also comfortable. Latest device is Flexpen. Now, we have the latest type of insulin called Analog insulin. These modern insulin therapies have better quality compared to physiological insulin. But, there is one problem that is hypoglycemia. Efforts are going on to reduce hypoglycemia. There are some latest insulin technologies called smart insulin. Smart insulin is a patch with micro needle. When blood sugar level in the body rises, only then it releases insulin; thus hypoglycemia does not occur. It will be in the market by 2021.

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Another technology is insulin pump, for which you have to set the insulin-dose of the pump. Nothing is still up to the mark compared to patient's expectation.

High blood sugar level in body causes glucotoxicity and lipotoxicity which badly affect kidney, pancreas and liver. If the patients want to avoid insulin, they need appropriate counseling.

Due to the technological development, today we have Needle & Syringe or Pen Device to take Insulin. Which one is the most ideal?

I would say cost is an important issue. Besides, you cannot deny the pain of push. Small needles are tolerable but these are also costly.

How 'early insulinization' can help to control Diabetes?

Like, I said before, early insulinization is always better to oppose glucotoxicity and lipotoxicity. But initiation and intensification algorithm should be as per guideline.

Do you think that the lifestyle of the people of Bangladesh is one of the reasons behind Diabetes?

Type-1 Diabetes is an autoimmune disease and Type-2 is polygenic. Heredity may have an influence but, mostly environmental reasons cause Diabetes. We are not interested to walk. Definitely environment is a problem but life-style depends on

one's individual choice.

There are so many parks and open spaces, but people are reluctant to exercise. People have to change their life pattern, not only food habit, otherwise it will be very difficult to control Diabetes.

Hypoglycemia has always been a nightmare to the Insulin users and doctors are always aware of this. What do you advise to manage it?

When somebody is having the deadly experience of hypoglycemia, he or she will naturally oppose to take insulin.

For the prevention of hypoglycemia, the patient himself along with his relatives should know how to treat it. They should know the symptoms. Initially, he gets hungry and then starts sweating. After observing these symptoms, patients should immediately take sugar or any kind of fine sweetener or glucose. This is the first step. Next step is, he or she should reduce the dose of medicine.

Diabetes in our country is increasing day by day, what are your suggestions to combat it?

In one sentence, stay mobile. Whenever you can walk, run or swim as much as possible. In terms of diet, when you are having calories you have to burn it. Through lifestyle modification and taking healthy food, we can prevent Diabetes to a large extent.

DID YOU KNOW?

RESEARCHERS IN CHINA USE NANOPARTICLES FOR BREAST CANCER TREATMENT

A group of researchers at the Nanjing University in China has invented imprinted nanoparticles that can be used to target aggressive Breast Cancer. About 20-30% of Breast Cancer cases belong to the very poorly treatable, HER2 positive variety. HER2 stands for human epidermal growth factor receptor 2, a protein that recognizes and binds to a specific growth factor to trigger cell division, metastasis and the formation of blood vessels that supply the tumor with nutrients and oxygen. Existing therapies for HER2-positive Breast Cancer include using antibodies that bind HER2 to prevent the activation of downstream cellular processes. In this study, researchers have devised an alternative approach to target HER2-positive cancers using molecularly imprinted biocompatible polymer nanoparticles that recognize HER2 just as specifically as an antibody.

PHARMACOVIGILANCE EVENTS – You can't afford to miss!

Event	Venue	Date
Pharmacovigilance & Risk Management Strategies Conference	Washington DC, USA	Jan 27–29, 2020
14th Global Pharmacovigilance and Clinical Trials Summit	Sydney, Australia	Feb 24–25, 2020
Back to Basics in Pharmacovigilance	Fareham, UK	Feb 26–27, 2020
6th Asia-Pacific PV training course	Ghaziabad, India	Feb 24–Mar 07, 2020
22nd International Pharmacovigilance Training Course	Sweden	May 4–15, 2020

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Some Basics on Insulin Therapy



Dr Indrajit Prasad
FCPS, MD, FACE
Associate Professor & Head
Department of Endocrinology
Dhaka Medical College & Hospital

What is insulin?

Insulin is a medicine that many people with Diabetes use as a part of their treatment. Diabetes is a disorder that disrupts the way a person's body uses sugar. This causes sugar to build up in the blood. Insulin can lower a person's blood sugar level. Insulin usually comes in the form of a shot that a person gives to herself or himself.

Are there different types of insulin?

Yes. All types of insulin can control blood sugar levels. But some types of insulin start working faster or last longer than other types. Many people use 2 types of insulin each day so that their body has insulin round the clock.

How many times a day should I use insulin?

It depends. Your doctor will make a treatment plan with you that tells you:

- When to use insulin
- What type of insulin to use
- How much insulin to use

Some people use the same amount of insulin, 1 or 2 times a day, at the same time. But many people use insulin 3 or more times a day, usually before each meal. Using insulin 3 or more times a day can control a person's blood sugar level better.

How much insulin should I use?

Sometimes, people need to choose their dose of insulin. When choosing how much insulin to use, people need to think about:

- What they plan to eat at the next meal
- How much exercise they plan to do
- What their blood sugar level is

People also usually need to change their insulin dose if they:

- Have surgery, get sick, or get pregnant
- Eat out or travel
- Gain or lose weight

Ask your doctor how to change your insulin dose during these times.

How do I give myself an insulin shot?

Your doctor or nurse will teach you how to give yourself an insulin shot. You will need either a prefilled insulin pen injector or a needle and syringe to draw up insulin from a small bottle.

The pen injectors are easier to use than the older syringes and insulin bottles. They have prefilled insulin cartridges and a needle. There is a knob at the end of the pen, which you can turn to mark the number of units you need to take. If you cannot turn the knob to set a dose, it means there is not enough insulin left in the pen. When this happens, it is time to start a new pen.

If you use a bottle and syringe, be sure you are using the proper syringe according to the type of insulin. Using the wrong syringe can cause a dangerous insulin overdose.

Whether you are using an injector pen or a syringe, the way you give yourself the insulin shot is the same. Here's what you have to do:

- Choose a part of the body as you can use different parts of the body for an insulin shot
- Pinch up some skin and quickly insert the needle
- Push the plunger down all the way and count to 5
- Let go of the skin and remove the needle
- Throw out the needle (and syringe, if you are using one) in a container that is made for used needles

You should never use another person's insulin pen – even if the needle is changed – or let another person use yours.

What is an insulin pump?

An insulin pump is a device that slowly releases insulin into the body when needed. The insulin goes through a thin tube from the pump into the body through an opening in the skin. The device never ceases to work.

What is inhaled insulin?

Inhaled insulin is insulin powder that is administered by inhalation. The insulin powder comes in a cartridge that can be placed into a small inhaler (like an asthma inhaler). The inhaler is placed in the mouth and when you breathe in, the powdered insulin goes into the lungs.

How do I know if I am using the right amount of insulin?

To know if you are using the right amount of insulin, you can check your blood sugar level at home. Most doctors recommend that people who use insulin should check

their blood sugar level at least 4 times a day.

Why do I need to check my blood sugar level?

Checking your blood sugar level is important because it can tell you:

- **If your blood sugar level gets too low or too high** – If you use too much insulin, your blood sugar level can get very low. If you do not use enough insulin, your blood sugar level can get very high. Levels that are too low or too high can lead to serious problems. Talk to your doctor or nurse about what to do if your blood sugar level gets too low or too high.
- **What changes to make in your next insulin dose** – Knowing your blood sugar level will help you choose your next insulin dose.
- **How well your treatment is working** – One goal of Diabetes treatment is to keep your blood sugar at or near your desired level. This can prevent health problems later in life.

How do I check my blood sugar level at home?

You can use a device called a "blood glucose monitor" to check your blood sugar level. Your doctor or nurse will show you how to use your blood glucose monitor.

Most blood glucose monitors work the same way. You will need to prick your skin to get a drop of blood. Many people prick their fingertips, but you can prick other parts of the body. Then you will put the drop of blood into the monitor. After a few seconds, the monitor will show your blood sugar level.

Some people use a device that measures the blood sugar all the time. This is called "continuous monitoring." The person wears a special sensor that attaches to the skin with a sticky patch. It measures blood sugar and sends the information to a small box that can attach to clothing or go in a bag. People who have continuous monitoring still need to check their blood sugar by pricking their skin. This is especially important when blood sugar levels are changing quickly, or when the person thinks the monitor might not be working correctly.

Needle Phobia and Promising Alternatives to Insulin Injection

Trypanophobia is one of the most common human fears – most children are afraid of needles – but in most cases the fear lessens as we age. This can be problematic for diabetic patients as the most common method of administering insulin is through pens, pump or syringe.

Researchers are constantly trying to develop non-invasive methods of insulin administration to help make it a more comfortable experience.

One of the most patient-friendly and non-invasive methods of administering medicine is orally. The biggest challenge of creating pills of insulin is that gastric acid destroys the peptide hormone present in insulin

before it can be absorbed into the bloodstream, making it an ineffective treatment. This year, researchers from the Massachusetts Institute of Technology have been inspired by tortoise behavior as they attempt to create a pill that will be effective and administer an adequate dose of insulin into a patient's body. The pill would be the size of a blueberry with an insert made of insulin. The researchers studied how tortoises flip over when they fall, and mimicked the pill to be a similar shape, so that the injection never misfires and always is in contact with the stomach tissue before injecting the medicine.

Another option is insulin that is taken intranasally (via the nose),



which delivers insulin directly to the brain. This type of insulin is not yet available for diabetic patients but is in development. Current test results show that the insulin will take 10 to 20 minutes to work, with further research focusing on how this type of insulin administration could improve cognitive and brain functions in patients. It has also shown improved memory functions in obese adolescents.

A different method of insulin administration is through an inhaler, which is similar to ones used by asthma patients. What makes this specific method efficient is that insulin is absorbed far more rapidly through the lungs, and it overcomes the big obstacle faced by oral insulin of being destroyed by gastric acids. Afrezza is the only device of this kind available. It takes 15 minutes to work and lasts for 2-3 hours. It is not a substitute for other long-acting insulin but can be used for everyday glucose control. Patients can inhale it before meals to help reduce blood sugar levels without having to use more invasive devices such as an insulin pen. Some limitations of this type of administration is that it cannot be used by everyone, for example smokers or those who have chronic lung disease.

These different methods of insulin delivery give diabetic patients more control of how they want to control their blood glucose levels. It also gives them the chance to avoid needles and get their insulin in a far more comfortable and potentially more efficient way.



Role of Artificial Intelligence and Machine Learning in Pharmaceuticals

Artificial Intelligence (AI) is comprised of two words ie, "Artificial" (meaning man-made) and "Intelligence" (meaning the ability to understand or think). However, machine learning (ML) is an application of artificial intelligence that provides machines the ability to understand automatically from accessed data and improve with time. Artificial intelligence is one of the most enormously existed digital healthcare technologies that offer transformational progression in the pharmaceutical sector. Similarly, advancement in ML algorithms

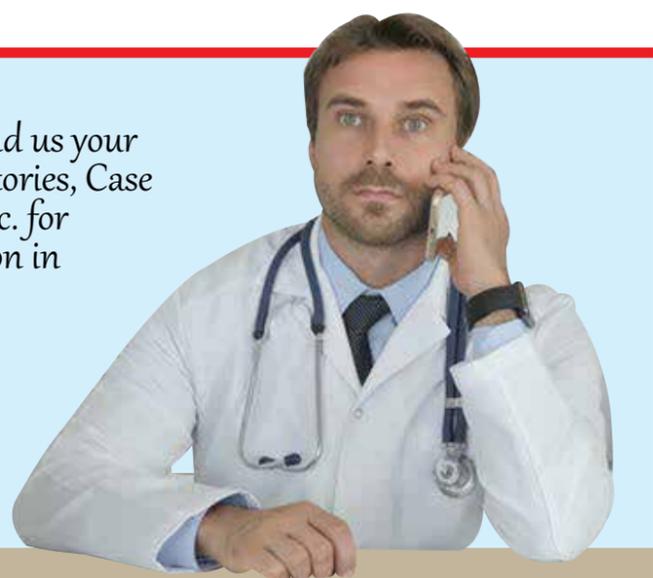
increased the software's ability to solve the highly focused problems of the healthcare sector. Earlier, the pharmaceutical industry spent around 15 years and approximately billion dollars in the drug development methods to get one drug approval from the Food and Drug Administration (FDA). Currently, the pharmaceutical industry has started developing AI and ML technology tools in the drug development process which has helped discover new drugs more efficiently and quickly than already present methods.

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Prevention of Type 2 Diabetes in Young



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Abstract

At present, Type 1 Diabetes cannot be prevented. The environmental triggers that are thought to generate the process that results in the destruction of the body's insulin producing cells are still under investigation. While there are a number of factors that influence the development of Type 2 Diabetes, it is evident that the most influential are lifestyle behavior commonly associated with urbanization. These include consumption of unhealthy food and inactive lifestyle with sedentary behavior. Studies from different parts of the world have established that lifestyle modification with physical activity and/or healthy diet can delay or prevent the onset of Type 2 Diabetes.

Introduction

The global prevalence of Diabetes in adults (20-79 years) is about 9.3% (more than 90% of whom have Type 2 Diabetes) in 2019, which is projected to increase 10.2% by 2045.¹

Although the increasing prevalence of Diabetes among older adults is well recognized, the rising number of young people with Type 2 Diabetes is a more recent development and is of particular concern. Earlier onset of Diabetes leads to longer lifetime exposure to hyperglycemia and consequently greater propensity for long-term complications. Additionally, the course of Type 2 Diabetes in young people could be more rapid and disruptive than in patients who develop the disease later in life, leading to early morbidity and poor quality of life.² Moreover, when Type 2 Diabetes develops in adolescents and young adults, the adverse societal effects could be greater because of the presence of a chronic disease throughout patients' working life. Increasing number of children, adolescents, and young adults with Type 2 Diabetes have been reported across most regions of the world. In the UK,³

a higher prevalence was reported in 2007 in the people of South Asian, African and African-Caribbean origin compared to white European populations. Individuals born in the USA in the year 2000 have an estimated risk for Diabetes by age 40 years of about 2-5% for men and 5% for women. These estimates are doubled for people who are Hispanic or Black, further suggesting that certain ethnic groups are disproportionately affected.⁴ However, evidence of apparent ethnic differences based on regional variations in prevalence (table 1) is limited because the diagnostic criteria used and method of data collection are not always consistent.⁵

Pathophysiology: Decline in β -cell function

The mechanisms leading to development of Type 2 Diabetes in young people are similar to those in older patients; however, the speed of onset, severity and interplay of reduced insulin sensitivity and defective insulin secretion might be different in patients who develop the disease at a younger age.⁶ In adolescents with Type 2 Diabetes, as in later onset Type 2 Diabetes, the initial deterioration in β -cell function is characterized by loss of first-phase nutrient-stimulated insulin secretion.⁷ However, some evidence suggests the second phase of nutrient-induced insulin secretion might be compromised earlier in the pathogenic process in younger individuals with Type 2 Diabetes.^{6,8}

Thus, accelerated decline of β -cell function seems to make an important contribution to the development of type 2 Diabetes in early life. The reason for this rapid failure of both phases of nutrient-stimulated insulin secretion are unclear, but the evidence suggests that Type 2 Diabetes might have a more aggressive course with faster loss of β -cell function with young onset than with later onset.



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Obesity-induced mechanisms

The prevalence of obesity among children, adolescents, and young adults with Type 2 Diabetes is much greater than in older adults with Type 2 Diabetes (eg, >80% vs 56%)⁹ and analyses of large databases²⁷ have confirmed a strong inverse association between BMI and age at diagnosis of Type 2 Diabetes. When Type 2 Diabetes presents in later life, the severity of insulin resistance is often greater among individuals with a history of protracted and severe obesity, particularly with excess visceral adiposity.¹⁰

Key drivers for the development of Type 2 Diabetes in young people¹¹

- Early life determinants
- Diet and obesity
- Physical activity
- Socioeconomic factors
- Family history
- Female sex and polycystic ovarian syndrome
- Non-alcoholic fatty liver disease

Societal effects of Type 2 Diabetes in young people

The frequency and severity of complications with young-onset Type 2 Diabetes might limit patients' capacity to work, and the economic and sociological consequences are, therefore, likely to be greater than for later-onset Type 2 Diabetes.¹² Protracted depression requiring substantial ongoing psychological support is common with young-onset Type 2 Diabetes,¹³ and reduced quality of life due to visual impairment, frequency of healthcare appointments, and lifestyle constraints are prominently cited by younger patients. Additionally, presence of Type 2 Diabetes during pregnancy can adversely affect maternal and fetal outcomes.¹⁴

International Diabetes Federation recommendations for a healthy diet for the general population¹

1. Choosing water, coffee or tea instead of fruit juice, soda, or other sugar sweetened beverages.
2. Eating at least three servings of vegetable every day, including green leafy vegetables.
3. Eating up to three servings of fresh fruit every day.
4. Choosing nuts, a piece of fresh fruit, or unsweetened yoghurt for snack.
5. Limiting alcohol intake to a maximum of two standard drinks per day.
6. Choosing lean cuts of white meat, poultry or seafood instead of red or processed meat.
7. Choosing peanut butter instead of chocolate spread or jam.
8. Choosing whole-grain bread, rice, or pasta instead of white bread, rice, or pasta.

9. Choosing unsaturated fats (olive oil, canola oil, corn oil, or sun flower oil) instead of saturated fats (butter, ghee, animal fat, coconut oil or palm oil).

A particular threat in terms of the associated risk of developing Type 2 Diabetes is the consumption of high sugar foods, particularly sugar-sweetened beverages. In 2014, the World Health Organization (WHO) issued new recommendations to limit sugar intake. IDF fully supports these recommendations and in response published the IDF Framework for Action on Sugar.

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GEMTUZUMAB OZOGAMICIN (MYLOTARG) IN ACUTE MYELOID LEUKAEMIA:

According to currently available clinical evaluation data, gemtuzumab ozogamicin (Mylotarg) does not provide tangible benefits for patients with acute myeloid leukaemia. In patients with acute myeloid leukaemia in good general condition, free of any associated disease, gemtuzumab ozogamicin has received EU approval as a first-line treatment in addition to the reference induction treatment, the combination of daunorubicin and cytarabine. The marketing of gemtuzumab ozogamicin has seen various U-turns. Authorised in the United States of America in 2000, the company stopped marketing it in 2010 due to excess mortality resulting from adverse effects. In 2008, the European Union refused to grant a marketing authorisation for the drug in first relapse of acute myeloid leukaemia due to its unfavourable harm-benefit balance. But in 2017 in the United States, and in 2018 in the European Union, the reverse decision was taken and a marketing authorisation was granted for gemtuzumab ozogamicin as a first-line treatment in addition to the combination of daunorubicin and cytarabine, at a different dosage from that of the 2000s. However, gemtuzumab ozogamicin does expose patients to severe adverse effects and increased short-term mortality, including at the recently approved dosage.

LARTRUVO

EMA has completed its assessment of the results of the ANNOUNCE study and concluded that Lartruvo (olaratumab) with doxorubicin does not prolong the lives of patients with soft tissue cancer more than doxorubicin alone. The Agency is therefore recommending that the marketing authorisation of the medicine be revoked.

FENSPIRIDE MEDICINES

EMA's safety committee (PRAC) has recommended that the marketing authorisations for fenspiride medicines be revoked, so the medicines can no longer be marketed in the EU. This follows a review that has confirmed that these cough medicines could cause heart rhythm problems. The PRAC considered all the available evidence in its review. This included cases of QT

prolongation and torsades de pointes (abnormalities of the heart's electrical activity that may lead to heart rhythm disturbances) in patients using these medicines, results of laboratory studies, data from published literature and stakeholder input. Heart rhythm problems can be serious and occur suddenly, and it is not feasible to identify in advance the patients who may be at risk of these problems with fenspiride. In contrast, fenspiride medicines are used to treat non-serious cough. Therefore, the PRAC considered that these medicines should no longer be marketed. The PRAC recommendation will now be sent to the CMDh1 to make a decision about its implementation. The CMDh is a body representing EU Member States as well as Iceland, Liechtenstein and Norway.

FEBUXOSTAT

The HPRA has announced that the product information for febuxostat will be updated to include the risk of cardiovascular death and all-cause mortality in patients with gout and a history of major cardiovascular disease, following results of a clinical study. Febuxostat is a non-purine selective inhibitor of xanthine oxidase indicated for the treatment of chronic hyperuricaemia. The incidence of cardiovascular death was significantly higher in the group that received febuxostat than in the group that received allopurinol. The rate of all-cause mortality was also higher in patients taking febuxostat than in those taking allopurinol. Patients with pre-existing major cardiovascular disease should not be treated with febuxostat unless no other treatment options are appropriate.

HEPATITIS C MEDICINES

The US FDA has announced that it has received cases of worsening liver function or liver failure in patients taking hepatitis C medicines (Mavyret[®], Zepatier[®] and Vosevi[®]). Health-care professionals should continue to prescribe the medicines as indicated in the prescribing information for patients without liver impairment or with mild liver impairment. Also, they should assess severity of liver disease at baseline and closely monitor for signs and symptoms of worsening liver function such as an increase in liver enzymes, jaundice, ascites, encephalopathy and variceal hemorrhage. The medicines should be discontinued in patients who develop signs and symptoms of liver decompensation.

Is China now the World's Premier API Development Hub?

The pharma industry in the Asia and Pacific region has undergone a notable boom in the last 5 years. It is already home to the two largest producers of generic medications and pharmaceutical ingredients and is renowned as a dominant global hub for high volume low margin goods. But what is now apparent is that in the next 5 years the fastest rate of growth will be seen by companies producing innovative active pharmaceutical ingredients (APIs).

There are a number of specialist providers that over the last decade have built up the reputation of the region as a hub to undertake rapid development of new chemical entity (NCEs). The earlier adopters were big pharma companies in the United States and Europe, but more recently Biotechs globally have invested in NCE development in Asia. The model is a simple one; by outsourcing process development to specialist R&D teams in China, innovators are able to progress more targets at any one time simultaneously thereby expediting development of vital new medicines.

But if we now focus on regional innovation the changes are perhaps even starker. In China, Innovation is well known to be accelerating quickly, with regulatory changes, helping Biotech Companies advance and attract further investment into the industry. This is largely attributed to regulatory reforms, such as the MAH (marketing Authorisation Holder) pilot programme, as well as new clinical trial regulations. Under the MAH programme domestic Biotech Companies are able to transfer NCE API manufacturing and drug development activities to a domestic contract development and manufacturing organization (CDMO), in one of ten



CHINA - WORLD'S LARGEST VACCINE PLAYER

China is the world's largest vaccine producer. There are 45 vaccine manufacturers, which can produce 63 kinds of vaccines and prevent 34 kinds of infectious diseases. The annual production capacity exceeds 1 billion doses. It is one of the few in the world that can solve all of them by its own ability. One of the countries planning immunization vaccines, domestic vaccines account for more than 95% of the actual national inoculation.

China has strict management systems and review mechanisms for the "R&D production-distribution-inoculation" of vaccines. In 2011, the Chinese vaccine regulatory system passed the World Health Organization (WHO) vaccine national regulatory system assessment and in 2014 passed the WHO reassessment. This assessment is not only a comprehensive consideration of the capacity of a national vaccine regulatory agency, but also the basis and premise for the country's vaccine manufacturers to apply for WHO product pre-certification and access to international procurement channels. Up to now, China's production of live attenuated Japanese Encephalitis Vaccine, oral type I Polio vaccine, Influenza Vaccine and Hepatitis. An inactivated vaccine has been pre-certified by WHO products, UNICEF, Global Alliance for vaccines and Immunization. These vaccines are being purchased in succession for disease prevention and control in other countries.

provinces. Meaning license holders no longer need to invest in building their own manufacturing sites. For our company this has been a great advantage - as we also have regulatory approvals from agencies in U.S., Canada, EU, Switzerland, Australia,

New Zealand and Japan potentially enabling parallel approvals - but it is undoubtedly opening up the potential of the entire CDMO industry in China. With the number of experienced chemists in the country, the diversity of the biotech sector, and reg-

ulatory harmonization, the growth of domestic development capabilities at CDMOs is set to continue apace.

Additionally, we now see innovators from outside of China (now the world's second largest Pharma market with remarkably a third of all cancer patients) looking to capitalize and launch products in China, as well as the traditional market of first approval - the United States. For example, Fibrinogen, the US Biotech, is currently undergoing a National Medical Products Administration (NMPA) (formally CFDA) approval ahead of its approval by the United States FDA - which represents a symbolic shift in attitudes.

In fact, one of the advantages of running parallel approvals is the possibility of an expedited approval process in China, which makes it feasible for a drug to be approved in China prior to the rest of the world. Certain indications get fast-track status, as an "unmet urgent need" in China. For example, several oncology indications have been approved on limited clinical data. However, there is also a list of rare diseases in China that will be granted an "accelerated pathway". An extreme example of this is Gardasil NDA, which was approved conditionally in just eight days based on international clinical data.

But, we are really just at the start of this emerging 'third age' and just last year, Ascletris was the first company to commercially launch a drug in China using the MAH pilot programme, Ganovo. Looking ahead to the next year, there could well be a quick acceleration of interest, as more Biotech Companies become aware of regulatory reforms and the opportunities that abound.

It is such an exciting time for APAC nations and China in particular. Over the next few years as more talent, investment and commercial products emerge we anticipate the region becoming globally renowned as a key manufacturing and development hub for innovative APIs.

DIABETES DURING PREGNANCY NEGATIVELY AFFECTS MOTHERS

Diabetes during pregnancy negatively affects the health of women and their babies. According to a survey, a total of 20 pregnant women among every 100 are affected by Diabetes during their pregnancy.

Bangladesh Diabetic Samity President Professor AK Azad Khan said around 80 lakh people in Bangladesh are suffering from Diabetes. Besides, 20 pregnant women among every 100 are affected by Diabetes during their pregnancy which later turns into type-2 Diabetes.

He said there is a probability, in many cases, that the child of a diabetic woman will be affected also by Diabetes. Khan said "Awareness and planned pregnancy can protect the women and their children from the disease."

Besides, a new research, conducted by European Association for the Study of Diabetes (EASD), shows that preterm birth is linked to increased rates of type 1 and type 2 Diabetes in children and young adults, with particular effects stronger in females.

People who have been born preterm may need more intensive monitoring and prevention efforts to lower their risk of Diabetes, it added.



EATING ULTRA-PROCESSED FOODS TIED TO DIABETES RISK



Higher intake of ultra-processed foods (for example, packaged snack foods) is associated with increased risk for type 2 Diabetes, according to a prospective study in JAMA Internal Medicine.

Over 100,000 French adults completed a series of 24-hour dietary recall questionnaires over two years. During a median follow-up of 6 years, roughly 820 participants were diagnosed with type 2 Diabetes.

After adjustment for body-mass index, physical activity, and other confounders, participants who ate more ultra-processed foods were at higher risk for Diabetes. In particular, the risk increased by 13% with each 10% increase in the proportion of diet comprising ultra-processed foods.

The authors note that in previous studies, ultra-processed foods have been linked to increased risks for cancer, cardiovascular disease, and mortality.

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PHARMAVIGILANCE

EMA Predicts Pharmacovigilance Contours in 2030



Smarter collection and reporting of safety reports of suspected adverse reactions, measurement of on-market performance of medicines, and improved engagement between regulators, patients and healthcare professionals will be key elements of pharmacovigilance in 2030. These predictions are made in an article from Guido Rasi, EMA's Executive Director, Sabine Straus, the chair of EMA's safety committee (PRAC) and Peter Arlett, the Agency's Head of Pharmacovigilance and Epidemiology, published in Clinical Pharmacology and Therapeutics.

Medicines prevent, diagnose or treat diseases, but they also can have side effects. Therefore, their risks need to be balanced against their benefits and only medicines with a positive benefit-risk balance are authorised for marketing in the EU. The European medicines regulatory network has established a robust system for monitoring and managing the risks of medicines on the market. Coordinated by EMA, this pharmacovigilance system is designed to enable patients to benefit from medicines while making them as safe as possible.

Pharmacovigilance systems across the globe are changing significantly due to technology advancements, increasing volumes of data available to regulators and companies, and increasing engagement of patients in

healthcare decision making. In this context, the authors anticipate three major trends in the next ten years.

Individual case safety reports (ICSR) will continue to be a key data source for detecting potential new safety issues and can be further improved. By 2030, ICSR reporting will be much smarter. New technologies such as e-Health applications, as well as ongoing collaboration between the industry and regulators to revise the International Council on Harmonisation (ICH) guideline E2D on post-approval safety data management provide opportunities to optimise the collection and management of ICSRs.

Pharmacovigilance has made great progress in moving from a reactive activity driven solely by spontaneous reports of suspected adverse reactions to a more proactive monitoring activity based on careful planning before the product is placed on the market. By 2030, for key new medicines this monitoring will encompass both the safety and efficacy of medicines and will facilitate real-time decision-making by regulators to optimise the safe and effective use of medicines.

In 2030, regulators will dedicate significantly more time to engaging with patients and healthcare professionals and thus ensuring that the information provided to them is impactful.

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Research highlights Angioplasty risks in People with Diabetes



Many people with Diabetes — both type 1 and type 2 — are aware that their condition puts them at higher risk for heart disease and related problems. But they might not be aware that their Diabetes also puts them at higher risk for complications if they undergo angioplasty, a common procedure in which constricted arteries are opened up and stabilized with a tube known as a stent. The researchers were interested in exploring what leads to a complication called restenosis, in which the treated blood vessel clogs up again after an angioplasty. They already knew that insulin and a similar hormone, insulin-like growth factor (IGF), stimulate the growth and movement of cells in blood vessels that play a major role in restenosis, known as vascular smooth muscle cells (VSMCs).

Vitamin D supplementation does not reduce risk of type 2 Diabetes

Serum 25-hydroxyvitamin D levels are lower in individuals with obesity and with type 2 Diabetes, but vitamin D intervention studies have shown either no or only limited beneficial effects. In a recent trial in over 2400 adults at high risk for type 2 Diabetes not selected for vitamin D insufficiency, vitamin D supplementation (4000 IU daily) compared with placebo did not reduce the risk of Diabetes after a median follow-up of 2.5 years.

Low-dose aspirin might cut Cancer Risk, especially for overweight people

Daily low-dose aspirin might reduce your risk of dying from cancer, particularly if you've packed on a few extra pounds, researchers say. Taking aspirin three or more times a week is associated with a lower risk of cancer death as well as death for any reason, a new study reports. Aspirin's protective effect appears particularly pronounced among people who are overweight -- those with a body mass index of 25 to 29.9, the results show.

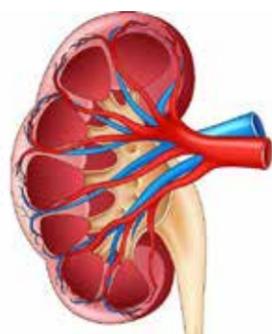
Taking several prescription drugs may trigger serious side effects

Many older adults take a variety of prescription drugs, yet new research suggests that combining various medications is not always wise. Taking lots of different drugs for different conditions is called "polypharmacy," and a team of researchers



set out to find how doctors take this into account in their prescribing. To address this, providers discuss "deprescribing" — working with patients to cut down on unnecessary or redundant medications. Drugs to treat high blood pressure, to thin blood and lower cholesterol are some of the most prescribed drugs in the world, the researchers noted. Although these medications save lives, they can cause serious reactions when mixed with other drugs.

Supplements Don't Prevent Kidney Disease in Type 2 Diabetics



Taking vitamin D and fish oil supplements won't prevent kidney disease in people with type 2 Diabetes, a new study finds. Many diabetics use the supplements, hoping they will have a positive effect on their kidneys and heart, the researchers said.

Antibiotics Not Recommended for Most Toothaches

Antibiotics aren't necessary for most toothaches, a new American Dental Association (ADA) guideline says. It's common for doctors and dentists to prescribe antibiotics to ease toothache symptoms and prevent a more serious condition. But a review that led to the new guideline concluded that antibiotics are not the best option for adults with a toothache. Instead, they should get dental treatment and, if needed, use over-the-counter pain relievers such as acetaminophen (Tylenol) and ibuprofen (Motrin, Advil), according to the ADA.

Could a pill replace Insulin shots?

Many people with Diabetes have to inject themselves with insulin at least once a day, but new animal research suggests a pill may one day do the trick. This experimental pill can withstand the trip through the gastroin-



testinal tract, scientists report. When it gets to the small intestine, it breaks down into dissolving microneedles that attach to the intestinal wall and release the drug into the bloodstream. In tests in pigs, the capsule, loaded with the same amount of insulin as an injection, was able to deliver insulin to the bloodstream as fast as an injection, researchers found.

Bedtime May Be Best Time for Blood Pressure Meds

Taking blood pressure medications at bedtime rather than in the morning nearly halves the risk of dying from a heart attack, stroke or heart failure, a large, new study finds. Researchers in Spain followed more than 19,000 adults with high blood pressure. They found that people who took all their blood pressure meds at night had lower blood pressure around the clock compared to volunteers who took their medication in the morning. In the end, the investigators found that those who always took their meds at night saw their risk of dying as a result of heart or blood vessel problems plunge by two-thirds, compared with those who always took them in the morning. A bedtime drug regimen was also linked to a 44% drop in heart attack risk; a 40% drop in the risk for surgery to widen arterial pathways (coronary revascularization); a 42% lower risk for heart failure; and a 49% dip in stroke risk, the researchers

reported. Overall, the reduction in risk for cardiovascular-related death was 45%, the findings showed.

Gum disease might raise your Blood Pressure

Here's a compelling reason to keep those dreaded appointments with your dentist: New research suggests that red, tender or bleeding gums could trigger high blood pressure. In a review of 81 studies that included more than 250,000 people, U.K. scientists found that those who had moderate to severe gum disease (periodontitis) had a 22% increased risk for high blood pressure, and those with severe gum disease had a 49% higher risk.

Less sleep increases risks for Diabetes

Sleeping less increases risks for Diabetes, cancer, and early death, according to a recent study. Researchers found that middle-aged adults with high blood pressure, type



2 Diabetes, heart disease or stroke are at increased risk for cancer and early death when sleeping less than 6 hours per day. The study also suggests that those who regularly sleep fewer than six hours a night have double the increased risk of Diabetes, while a similar report shows those at rest for fewer than five hours have triple the risk.

Statins double risk for type 2 Diabetes

A retrospective study of thousands of individual patient health records



(US) found that people who are prescribed cholesterol-lowering statins have at least double the risk of developing type 2 Diabetes than those who don't take the drug. Additionally, length of time on the drug impacts risk as well. People who take statins for more than two years have more than three times the risk of newly onset type 2 Diabetes. The study, published in the journal *Diabetes Metabolism Research and Reviews*, included 4,683 men and women who did not have Diabetes, were candidates for statins based on heart disease risk and had not yet taken the drugs at the start of the study. About 16 percent of the group (755 patients) were eventually prescribed statins during the study period, which ran from 2011 until 2014. Participants' average age was 46.

Aspirin may halve air pollution harms

A new study is the first to report evidence that nonsteroidal anti-inflammatory drugs (NSAIDs) like aspirin may lessen the adverse effects of air pollution exposure on lung function. The team of researchers from the Columbia Mailman School of Public Health, Harvard Chan School of Public Health, Boston University School of Medicine published their findings in the *American Journal of Respiratory and Critical Care Medicine*.

Role of Clinical Pharmacist in Hospitals



Khandaker Sagir Ahmed. PhD
Director (PRL)
Directorate General of Drug
Administration (DGDA)

The ever-changing global pharmaceutical market and the development of new complex drug molecules to address the population's healthcare needs are making pharmacy practice more challenging, improving patients' quality of life with safe and cost-effective medicines is a growing priority for the health policymakers worldwide. Within this context, in order to promote quality use of medicines in a healthcare system pharmacists need to be equipped with not only basic knowledge of sciences but also the fundamentals of clinical therapeutics and practices.

As a profession, pharmacy has gone through rapid changes in the recent decades with many countries pushing for more patient-oriented clinical roles, integrating pharmacists into a multi-disciplinary team alongside doctors, nurses and other healthcare professionals. For instances, in the countries such as the UK, the United States, Australia, New Zealand pharmacists in the community are expected to be accessible to patients and to counsel patients about their medications. There are pharmacist prescribers and a new role is emerging to work in GP practice. As a result, clinical pharmacy has emerged as a new area of pharmacy. Clinical pharmacy is defined as a health science discipline where pharmacists provide patient care that optimizes medication therapy and promotes health, wellness and disease prevention. The practice of clinical pharmacy embraces the philosophy of pharmaceutical care, blending a caring orientation with specialized therapeutic knowledge, experience and judgment to ensure optimal patient outcomes. As a discipline, the clinical pharmacy also has an obligation to contribute to the generation

of new knowledge that advances health and quality of life.

Clinical Pharmacist:

Clinical pharmacists are licensed practitioners with advanced education and training who practice in all types of patient care settings with a focus on comprehensive medication management. These specialized pharmacists are focused on achieving optimal use of medications, effects and economic efficiency to achieve optimal patient outcomes. Clinical pharmacists are gaining significant attention worldwide as important members of the patient care team for ambulatory and acute patients. Clinical pharmacists practice in all healthcare settings and utilize in-depth knowledge of medications and disease states to manage medication therapy as a part of a multidisciplinary professional team. Clinical pharmacists are responsible and accountable for the medication therapy and patient outcomes. They are a primary source of scientifically valid information on the safe, appropriate and cost-effective use of medications.

Pharmacist is patient care process:

Medication safety can be improved through the use of the Pharmacists' Patient Care Process (PPCP). The PPCP is a five-step process that can be used as a framework for delivering pharmacists' patient care services in any practice setting. In the PPCP, pharmacists use a patient-centered approach in collaboration with other health care providers to optimize patient health and medication outcomes. Patient safety is inherent in every step of the PPCP.

Using evidence-based practices, Pharmacists –

1. Collect:

The pharmacist assures the collection of necessary subjective and objective

information about the patient in order to understand the relevant medical/medications history, clinical status of the patient. Information may be gathered and verified from multiple sources including existing patients records, the patient and other healthcare professionals. This process includes collecting (a)

- current medication list and medicine use history for prescriptions and non-prescriptions medications, herbal products and dietary supplements.
- Relevant health data that may include medical history, health and wellness informations, biometric test results and physical assessment findings.
- Patients' lifestyle habits and beliefs, health and functional goals and socio-economic factors that affects access to medications and other aspects of care.

2. Assess:

The pharmacist assesses the information collected and analyzes the clinical effects of the patient's therapy in the context of the patient's overall health goals in order to identify and prioritize problems and achieve optimal care. This process includes-

- Assessing: each medication for appropriateness, effectiveness, safety, and patient adherence.
- Health and functional status, risk factors, health data, cultural factors, health literacy, and access to medications or other aspects of care.
- Immunization status and the need for preventive care and other health care services, where appropriate.

3. Plan:

The pharmacist develops an individualized patient-centered care plan, in collaboration with other health care professionals and the patient or caregiver that is evidence-based and cost-effective. This process includes establishing a care plan that:

- Addresses medication-related problems and optimizes medication therapy.
- Sets goals of therapy for achieving clinical outcomes in the context of the patient's overall health care goals and access to care.
- Engages the patient through education, empowerment, and self-management.
- Supports care continuity, including follow-up and transitions of care as appropriate.

4. Implement:

The pharmacist implements the care plan in collaboration with other health care professionals and the patient or caregiver. During the process of implementing the care plan, the pharmacist:

- Addresses medication and health-related problems and engages in preventive care strategies, including vaccine administration.
- Initiates, modifies, discontinues or administers medication therapy as authorized.
- Provides education and self-management training to the patient or caregiver.
- Contributes to coordination of care, including the referral or transition of the patient to another health care professional.
- Schedules follow-up care as needed to achieve goals of therapy

5. Follow-up:

The pharmacist monitors and evaluates the effectiveness of the care plan and modifies the plan in collaboration with other health care professionals and the patient or caregiver as needed. This process includes the continuous monitoring and evaluation of:

- Medication appropriateness, effectiveness, and safety and patient adherence through available health data, biometric test results and patients feedback.
- Clinical end points that contributes to the patient overall health.
- Outcome of care including progress towards or the achievements of goal of therapy.

Role of clinical pharmacist in Hospitals:

The goal of a clinical pharmacist is to support to provide the best quality drug therapy for the patients.

These may include:

- Prescription monitoring
- Maximizing drug efficiency
- Minimizing drug toxicity and promote cost effectiveness
- Therapeutic drug monitoring of drugs with narrow therapeutic index
- Drug information services
- Patients' services
- Patient counseling
- Improving patient compliance collecting past medical history.

Clinical pharmacists should have capabilities to:

- Assess the status of the patients' health problems and determine whether the prescribed medications are optimally meeting the patient's needs and goal of care.
- Evaluate the appropriateness and effectiveness of patients' medications.
- Recognize untreated health problems that could be improved or resolved with appropriate medication therapy.
- Follow the patient's progress to determine

the effects of patient's medication on his or her health.

- Consult with the patient's physicians and other health care providers in selecting the medication therapy that best meets the patient's needs and contributes effectively to the overall therapy goals.
- Advise the patient on how to take best his or her medications.
- Support the health care team's efforts to educate the patient on other important steps to improve or maintain health, such as exercise, diet, and preventive steps like immunization.

Benefits of clinical pharmacy services:

Provision of drug and poison information

The various electronic databases and drug information software are used for the provision of unbiased and latest medicine information in the western world. Such software give easy, quick and updated information about drugs. Some examples include- MICROMEDEX, PubMed, MedScape, Drugs.com, Cochrane library.

Medication history interview

Accurate medication history of the patient is important to assess the medical concordance, rationale for the drugs prescribed previously, patient understanding toward medicines, evidence for drug abuse, patient acceptance for the treatment, documenting allergies and adverse drug reactions (ADRs) etc.

Clinical review of details

In clinical review, pharmacists have to check the drug therapy to ensure that the patient is getting the most appropriate dose, dosage, dosage form, duration of therapy for their medical state. The signs and symptoms of the patient, laboratory results, medical diagnoses and therapeutic goals with

- Indications of the medicine
- Duration of action
- Proper stage
- How to take medication
- When and how long to take medication
- Special precaution about the drug
- Common adverse drug reactions
- Action to be taken when a dose is missed
- Drugs or foods to be avoided.

Ward round participation

It consists of a group of health care members having physicians, pharmacists, nurses and medical students provide the information to during the rounds. The purpose includes improved understanding of patient's history, progress, clinical details, to provide the infor-

mation on clinical aspects of patient's therapy and to improve discharge planning.

Medical coding

The codes are used in a variety of fields such as medicine, public health and medical information for statistical analysis, reimbursement schemes.

Medical billing

Medical billing is different from medical coding. It is the process of translation of healthcare service into billing claim.

Medical Transcription

In simple language, medical transcription is transcribing the doctor's report form dictated audio files and transcribes the oral dictation and edits the reports.

Pharmacovigilance

It is the science and activities related to the detection, assessment, understanding and prevention of adverse effects or any other drug-related problems. The documentation, analysis and prevention of ADRs are needed for epidemiological studies and patient safety.

Clinical research and drug development

There are countless clinical research organization present in the country. Pharmacists can play a role in enhancing patient participation in clinical trial research. Skills needed to work in clinical research organization include knowledge of statistical, medical and pharmacological terms, pharmaco-vigilance and sincerity in documentation.

Clinical pharmacy activities: Before the prescription:

involvement in conducting of clinical trials, preparation of formularies and source of drug information serve as the ground. Clinical pharmacist can make decision on drugs to be marketed, to be included in national /local formularies, with prescribing policies and treatment guidelines in practice.

During the prescription: The scope of clinical pharmacist is wide, extending from counseling and influencing the mindset of prescribers by pathological, pharmacological and pharmaco-economic information.

After the prescription: The overall goal of a clinical pharmacist is to promote appropriate use of medicines and devices so as to ensure maximum clinical safety and efficacy of medicines This also includes monitoring the therapy course and the patient/s compliances with therapy, minimizing the treatment expenditures borne by the national health systems and patients.

Medication history review: Accurate medication history of the patient is important to assess the medical concordance, rationale for the drugs prescribed, patients understanding towards medicines ,evidence for drug abuse, patient acceptance for the treatment , documenting allergies and adverse reactions.

Clinical review:

As a result of clinical review the patient is getting the most appropriate dose, dosage form, duration of therapy for their medical/diseased state and co- relate the signs and symptoms of the patient, laboratory result, medical diagnosis and therapeutic goals with the medication history for better patient care.

Patient Counseling:

The pharmacist may provide the information about current clinical condition/proceedings of the patient and educate him about the safe and effective use of medicines thereby enhancing his therapeutic outcomes. Generally, there are many questions in a patient's mind about disease, drugs, lifestyle modifications, diet, treatment, duration of therapy and medical devices eg; metered dose inhalers for asthma patient or insulin pen for diabetics.

The patient may be counseled/ educated for following points about the drug by the pharmacists:

1. Generic name, brand name of the drug.
2. Dosage.
3. Indications.
4. Proper storage.
5. Route of administration.
6. When and how long to take medication.
7. Information about ceased/ new medication.
8. Special precautions about the drug.
9. Common adverse drug reactions.
10. Actions to be taken when a dose is missed.
11. Drugs /food to be avoided.

Conclusion

About 95% of total graduate Pharmacists are working mainly in the pharmaceutical industries in production, quality control, quality assurance, drug development and in sales and marketing.

The other field of pharmacy practices like Hospital pharmacy, Clinical pharmacy or Community pharmacy are not established in Bangladesh. Some private hospitals like Apollo Hospital, Square Hospital ,United Hospital etc. are established in one sector i.e; hospital pharmacy department where graduate pharmacists are working 24 hours successfully and it was proved by the

local survey that their quality of treatment and services to the patient is quite appreciable. In developed countries of the world, major portions of pharmacists are involved in Community, Hospital and Clinical Pharmacy Services.

In the developed country of the world job sites for graduate pharmacist are not limited in industrial pharmacy practices and major portion of pharmacist are involved in community, hospital and clinical pharmacy services.

The system of Pharmacy education have to play on these pharmacy practices because they have updated their pharmacy education to 5 year pharmacy professional degree (Pharm. D) and this Doctor of Pharmacy (Pharm. D) course mainly focused on patient care services rather than industrial practices, pharmacists can play a vital role in the health care system through the services of community pharmacy, hospital pharmacy and clinical pharmacy etc.

By developing such sections, health facilities will be upgraded and easily we can prevent medication error and present job crisis will be solved, updating our graduate pharmacy education to 5 year pharmacy professional degree (Pharm. D) can help to establish these newly job sections not only in our country but also can help to establish career of our pharmacists in the developed countries like USA, Canada etc.

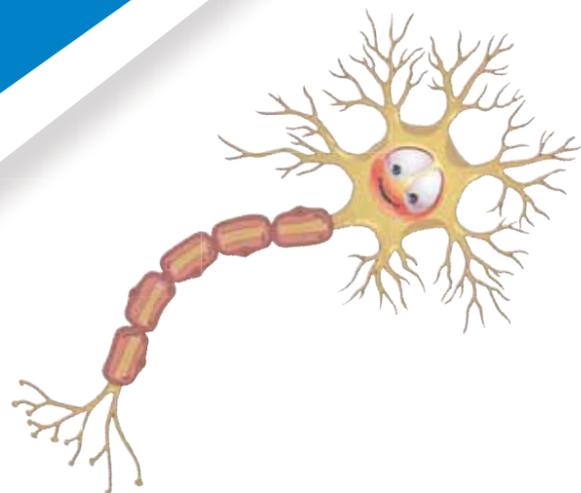
The establishment of strong Pharmacy Council is essential to run proper updated pharmacy education. The Ministry of Health and Family Welfare of the Govt. of Bangladesh, Directorate General of Drug Administration and Pharmacy Council of Bangladesh do work together to establish proper pharmacy practice areas, and to upgrade pharmacy education in Bangladesh. This will mainly help to upgrade our health care systems and our health facilities will be upgraded like the developed countries.

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Scientists develop platform to **kill cancer cells**

An interdisciplinary group of scientists from NUST MISIS, Lomonosov Moscow State University, Pirogov Russian National Research Medical University (RNRMU), and the University of Duisburg-Essen (Germany) has shown that a hybrid nanomaterial based on magnetite-gold particles can serve as a universal platform to both detect cancer cells anywhere in the body and to complete targeted deliveries of drugs to these cells. The discovery makes it possible to create and implement a completely new generation of cancer treatments in the coming years. This manmade nanohybrid has been tested both in vitro and in vivo. Laboratory tests on mice with grafted tumors have already been completed. According to the scientists, it will be possible to proceed to pre-clinical trials in just two to three years' time, as there is a few years of work remaining to be completed before clinical trials on real patients.

Multi- institutional alliance to develop anti-aging drugs

The Buck Institute, Juvenescence, and Insilico Medicine have announced a research collaboration utilizing artificial intelligence (AI) to discover and develop novel anti-aging therapeutics targeting a new molecular pathway. The three organizations have announced the formation of Napa Therapeutics Ltd, a company that would commercialize the results of the research collaboration. The collaboration will utilize an end-

to-end machine learning system to identify the molecular targets and generate the novel compounds. The Buck Institute is one of the leading research centres in the world, focused solely on research on aging and the elimination of age-related disease. Insilico Medicine is an AI company focused on a range of verticals devoted to aging. Insilico Medicine stands to earn more than \$100 million in milestone payments, should the program be successful. Juvenescence is a company focused on developing drugs to modify aging and the diseases of aging.



Indian researchers develop new detection kit for Malaria

A group of researchers from the Indian Institute of Technology (IIT) in Guwahati, India has developed a simple detection method for Malaria that uses an instrument when in the lab or a piece of chromatographic paper when in the field. The kit can be used to detect Plasmodium parasite, which causes Malaria and also specifically detect Plasmodium falciparum. Using an ordinary Syringe fitted with a small magnet, magnetic beads and few chemicals inside, the researchers were able to specifically capture the antigen released by the parasites in the blood of Malaria patients. When the captured antigens interact with specific substrates inside the syringe, the blue dye turns pink. The dye is then adsorbed over a modified chromatographic paper. The formation of pink colour on the paper is a direct indication of the presence of parasites in the blood serum. The intensity of the colour increases when the concentration of antigen is high. This kit also has high stability in hot and humid conditions. When mass produced, the kit can be cheaper than the existing rapid detection test kit available in the market.

India develops low-cost blood test device

Researchers from the Indian Institute of Technology (IIT) Kharagpur, India have developed a low-cost diagnostic device which can perform various pathological tests by using blood taken from a fingerprick. The device requires only a paper strip based kit integrated with a smartphone to enable analytics and readout functions and an LED light for imaging. The device requires a single drop of blood and a drop of reagent (a substance used to cause a chemical reaction) on the paper-based reaction chamber. This detection method is designed to harness the flow of blood from an input source pad to a reaction pad for diagnosis. Extensive validation tests have been conducted for blood glucose and haemoglobin at laboratories as well as in the field, both in clinical environment and villages with limited clinical facilities.

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Metformin

The FDA is investigating the Diabetes drug metformin for the presence of nitrosamines, genotoxic substances that might increase risk of cancer over time and whether these drugs exceed the acceptable daily limit of 96 ng. FDA Center for Drug Evaluation and Research Director Dr. Janet Woodcock said recalls will be initiated if unsafe levels of nitrosamines are found.

Baclofen

A commonly prescribed muscle relaxant known as baclofen can leave older kidney patients so disoriented that they land in the hospital, a new study warns. "It can present with acute stroke-like symptoms, even though it's not a stroke," said senior researcher Dr. Amit Garg, a professor of nephrology. It can present with dementia-like symptoms." About 1 in 25 people with low kidney function prescribed high doses of baclofen wound up being admitted to a hospital for severe confusion, according to a study of nearly 16,000 older Canadians with chronic kidney disease. By comparison, only one in 500 kidney patients not prescribed baclofen wound up hospitalized for confusion. Baclofen is typically prescribed to people suffering muscle spasms, Garg said. Doctors hand out more than 8 million prescriptions of baclofen every year.

Ibrance, Kisqali and Verzenio

USFDA is warning that Ibrance (palbociclib), Kisqali (ribociclib), and Verzenio (abemaciclib) used to treat some patients with advanced breast cancers may cause rare but severe inflammation of the lungs. FDA has approved new warnings about this risk to the prescribing information and Patient Package Insert for the entire class of these cyclin-dependent kinase 4/6 (CDK 4/6) inhibitor medicines. The overall benefit of CDK 4/6 inhibitors is still greater than the risks when used as prescribed.

Paracetamol

Paracetamol, known as acetaminophen, is generally indicated to treat mild to moderate pain relief. The Medicines Adverse Reactions Committee (MARC) of India discussed a report of acute hepatic failure in a child given a suspected paracetamol overdose. Following a review of the cases, advice on actions to take when prescribing and dispensing paracetamol for children were provided. For example, paracetamol should be used only for approved indications (pain, fever). The correct dose should be calculated using body weight.

Tramadol

According to a report a neonate suffered feeding disorder, somnolence (sleepiness), respiratory disorder and weight decrease while the breastfeeding mother was taking tramadol. Tramadol is indicated for the relief of moderate to severe pain and is used to help manage pain after a caesarean section. Small amounts of tramadol and its metabolite, which also helps with pain, are found in breast milk when taken by the mother. Although the amounts of tramadol and its metabolite are too low to cause a problem, there is a risk that the baby's breathing may be affected or that the baby may be allergic to tramadol or its metabolite.

Xeljanz

EMA has concluded that Xeljanz (tofacitinib) could increase the risk of blood clots in the lungs and in deep veins in patients who are already at high risk. As a result, the Agency is recommending that Xeljanz should be used with caution in all patients at high risk of blood clots. In addition, the maintenance doses of 10 mg twice daily should not be used in patients with ulcerative colitis who are at high risk of blood clots unless there is no suitable alternative treatment. Further, EMA is recommending that, due to an increased risk of infections, patients older than 65 years of age should be treated with Xeljanz only when there is no alternative treatment.

Fenspiride (Pneumorel)

Despite serious adverse effects reported for more than 20 years, fenspiride (Pneumorel®) was only withdrawn from the market in 2019. At the beginning of 2019, after noting cases of cardiac rhythm disorders, the French Health Products Agency (ANSM) suspended the marketing authorisation for fenspiride-based medicinal products used in coughing and sputum. This suspension has been extended to the rest of Europe.

Fluoroquinolones

Fluoroquinolones are a group of antibiotics that are effective on many bacteria. But their adverse effects are many and sometimes severe, which has led to the gradual limitation of their use. The European Pharmacovigilance Committee (PRAC) reassessed all adverse reactions to fluoroquinolones in 2018 and recommended that fluoroquinolones should only be prescribed as a last resort in simple acute cystitis, acute exacerbations of chronic obstructive pulmonary disease, acute bacterial sinusitis, and acute otitis media; they are no longer authorised in infections where their benefit is marginal.

Pharma cos 'spend 29.36% of turnover on marketing'

Pharmaceutical companies spend 29.36 per cent of their annual turnover on marketing, according to a latest study. Marketing cost has also been identified as one of the top five pricing determinants (PDs).

The survey listed the value of imported raw materials – 29.33 per cent of price – as top PD followed by government policy, product quality, domestic market competition and marketing cost.

The study findings were presented at the Research Almanac 2019 organised by the Bangladesh Institute of Development Studies (BIDS) at a city hotel.

According to the study, the prices of drugs in the country is higher because the medicine manufacturing companies pay money or gifts to doctors for prescribing their medicines to the patients.

Sometimes the companies even send the whole family of doctors abroad for holiday celebration or to big seminars to convince the physicians to prescribe the medicines of their respective companies, revealed the study that asked questions to medical representatives.

More than 60 per cent of the employees of the pharmaceutical companies consist of sales and medical representatives, the study found.

Moreover, the companies also give gifts to the doctors or arrange a big amount of money for the doctors so that they prescribe their medicines, said Nazneen Ahmed, senior research fellow at BIDS, while presenting the findings of the study titled 'Pharmaceutical Industry of Bangladesh: Prospects and Challenges'.

The drug prices go up in the domestic market when the medicine manufacturing companies convert the gifts into the cost of production, she explained.



Sometimes, the prices of drugs belonging to the same generic group vary significantly just because of doctors' prescription, she said. As patients follow doctors' prescription, they do not verify the prices, she said.

For instance, the price of a tablet produced by a small company is Tk 5, but the consumers purchase the same medicine produced by a big company at Tk 15 although both tablets are under the same generic group, she added. The size of the pharmaceutical industry in Bangladesh in 2018 was Tk 200 billion, the survey revealed.

As per the study findings, profits of factories – especially the large units – listed with the three initiatives have increased. The study also showed that profits of non-listed large factories increased while the same for small and medium ones decreased in 2018.

Dr. Selim Raihan, Executive Director of South Asian Network on Economic Modelling (SANEM) said, in many cases compliances in the factories are only in name, but not in practice. "Compliances cannot be a choice in the factories, compliance is a must for running the business," he added.

Talking about the quality of drugs in Bangladesh, he raised a question, saying that the Thai doctors prescribe one paracetamol tablet for fever while doctors in Bangladesh prescribe two paracetamol tablets.

It should be investigated whether big pharmaceuticals companies are manipulating the drug prices in the local markets as 10 such companies have more than 70 per cent of the local market share.

Source: The Financial Express

Asia-Pacific Diabetes Care Drugs Market - Growth, Trends and Forecast (2019 - 2024)

Market Overview

The Asia-Pacific market for Diabetes drugs is estimated to value USD 23.8 billion in 2019, and the market is expected to grow at the CAGR of 4.82%, during the forecast period.

Over the past few decades, Asian countries have witnessed a rapid increase in Diabetes patients, especially those with type 2 Diabetes. Developing countries have more than 70% of the global Diabetes population.

The Asian population gets Diabetes at a younger age in comparison to the Western population. The reason for this early Diabetes development is the sudden change in lifestyle, due to rapid economic growth.

Asia contributes approximately 60% of the total Diabetes patients in the world. The most obvious reason for this is that two of the most populated countries in the world are in Asia.

Key Market Trends

Oral Anti-Diabetes Drugs Take 67% of the Asia-Pacific Diabetes Drugs Market.

Meglitinide and sulfonylureas hold a significant market share, of 14.27% and 9.62%, respectively, while China and Japan occupy more than a 50% share in the Asia-Pacific Diabetes Drugs Market.

In the Asia-Pacific region, China and Japan have recognized as potential developing markets, due to the growing diabetic population in this region.

Japan is a mature market, with some associated challenges, like slow economic growth, the aging population, and increased competition. One particular challenge in this region is the growing preference for oral anti-diabetics among type-2 diabetic patients, thereby, leading to a negative insulin volume development.

China has the highest market share



ASIA CONTRIBUTES APPROXIMATELY 60% OF THE TOTAL DIABETES PATIENTS IN THE WORLD. THE MOST REASON IS THAT TWO OF THE MOST POPULATED COUNTRIES IN THE WORLD ARE IN ASIA.

and is expected to grow with a steady CAGR of 4%. It also contributes 15% to the global Diabetes drugs market.

The country is witnessing a significant increase in the number of generic drug manufacturers. Furthermore, the leading global players in the market studied are facing intense competition from the regional players.

Rising Key Facts on Diabetes

As per a WHO report, the global prevalence of Diabetes among adults of over

18 years had accelerated from about 4.7%, in 1980, to over 8.5%, in 2014.

Diabetes prevalence has been rising rapidly in the middle- and low-income countries. In 2015, about 1.6 million deaths were directly associated with Diabetes, which was around 2.2 million in 2012.

Almost half of all deaths attributable to high blood glucose occur before the age of 70 years. WHO projects that Diabetes is likely to be the seventh leading cause of death by 2030.

Statistics prove that one in ten individuals in the world has Diabetes and a rise in this trend is expected to take the situation to one in three by 2050 (according to the Center for Disease Control and Prevention).

The growing prevalence of Diabetes is the major driver for the global Diabetes care drugs market. Additionally, rising awareness regarding Diabetes care, growing prevalence of obesity, and technological advancements are further driving the market.

Source: Research and market.

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JPL-09/19-20

Biosensor glasses successful at testing blood glucose levels

A pioneering pair of glasses fitted with a biosensor could provide an alternative way to test blood glucose levels for people with Diabetes.

The glasses have a small sensor stationed on the nose pads which can get close to the tear duct. The sensor can then measure the concentration of glucose in tears. Because the level of glucose in tears goes up and down in proportion to the level of glucose in blood, measuring glucose levels in tears provides a reliable approximation of blood glucose levels.

The glasses have been developed by teams from the University of São Paulo's São Carlos Physics Institute and the University of California's Department of Nanoengineering, in San Diego.

Lead researcher Laís Canniatti Brazaca, said: "The concentrations of various metabolites in tears reflect concurrent blood levels, making them an attractive medium for non-invasive monitoring of physiological parameters."

She said that the device could also measure levels of vitamins and alcohol in the blood by "simply changing the coupled electrode attached on the eyeglasses' nose pads".

The device works once the user has produced tears and they come into contact with the glucose oxidase in the sensor.

The team notes that tears need to be produced for the sensor to work. This is possible by exposing the eye to substances that stimulate the lachrymal glands (tear glands).

While the concept is certainly different, there's a question of how much of a benefit the glasses would have compared with flash glucose monitors or continuous glucose monitors that do not require tears to be manually stimulated.

If the researchers are to continue developing the glasses, they may need to ensure that the sensor does not present any possibility of accidental eye injury.

The researchers do not yet have a date in mind for when the glasses could be commercialised.

7 EASY-TO-USE DIABETES TECHNOLOGY



OMNIPOD DASH

Omnipod DASH is a wearable insulin pump that provides continuous insulin and includes a Personal Diabetes Manager (PDM) in the form of a handheld device. The new Bluetooth PDM allows remote monitoring capabilities for up to 12 followers, a definite perk for parents and caregivers. The added Bluetooth and WiFi capabilities mean patients can use this system remotely.



DEXCOM G6

The Dexcom G6 is a real-time continuous glucose monitor, which patients can wear for 10 days. It doesn't require a fingerstick calibration before injecting insulin. Users can share the data from the monitor with up to 10 followers, and view the data and alerts on their receiver, smartphone and smartwatches.



SENSOR-AUGMENTED PUMPS

Examples of sensor-augmented pumps — which rely on CGMs to deliver the right amount of insulin at the right time — include the t:slim X2 from Tandem and Medtronic 670G. The t:slim X2 works with Basal IQ and Dexcom G6 technology, while the Medtronic 670G has a Guardian sensor. The t:slim X2 suspends insulin delivery when blood glucose levels are in the hypoglycemic range (<70 mg/dL) or when hypoglycemia is predicted. The Medtronic 670G system also suspends insulin delivery for actual or predicted hypoglycemia and automatically adjusts basal insulin rates to adjust for hyperglycemia.



FREESTYLE LIBRE

Freestyle Libre is a continuous glucose monitor that intermittently scans patients and can be worn for 14 days. It offers pain-free, glucose-level assessments by scanning a small sensor inserted under the skin instead of with fingersticks. This device can now use smartphones, in addition to the receiver, for scanning data using the LibreLink phone application.

Cefepime

The National Coordination Centre – Pharmacovigilance Programme of India (NCC-PvPI), Indian Pharmacopoeia Commission (IPC) has advised the Central Drugs Standard Control Organisation (CDSCO) to revise the patient information leaflet (PIL) for cefepime to include urticaria as an adverse drug reaction. Cefepime is indicated for the treatment of pneumonia, bacterial septicaemia, bronchitis, respiratory and urinary tract infections.

Montelukast

The HPRA has announced that existing warnings in the product information for montelukast will be updated to include the risk of neuropsychiatric reactions. Montelukast is indicated for the prophylaxis and treatment of asthmatic conditions. It is known to be associated with neuropsychiatric reactions including nightmares, insomnia, somnambulism, anxiety, agitation, aggressive behaviour, depression and psychomotor hyperactivity. The EMA’s PRAC completed a periodic review of cases reporting dysphemia with the use of montelukast, and an association between montelukast and dysphemia as well as other closely related speech disorders cannot be excluded. Health-care professionals and patients should be alert for the occurrence of neuropsychiatric reactions with montelukast.

Study Casts doubt on use of common heart failure drugs

A new study found that taking beta blockers was associated with an increased risk of hospitalization for patients with a certain form of heart failure. It’s commonly called the «stiff heart» subtype of heart failure, and it accounts for about half of the 6 million cases of heart failure in the United States, the researchers noted. Most patients with the subtype do take a beta blocker, even though it’s uncertain if they are of benefit in these cases. As the researchers explained, the drugs work by lowering heart rate and blood pressure, and they’re typically recommended for treatment of patients with another form of heart failure, the «weak heart» subtype, because they’re known to help those patients. However, the new study suggests that “this assumption may be wrong,” Plante said. U.S. Food and Drug Administration-approved beta blockers to treat heart failure include bisoprolol, carvedilol and metoprolol.

Ofloxacin

The NCC-PvPI, IPC has advised the CDSCO to request that the PIL for ofloxacin is revised to incorporate SJS/TEN as a clinically significant adverse drug reaction.

Ofloxacin is used for the treatment of bacterial infections of the skin, lungs, prostate, or urinary tract. Between July 2011 to July 2018, the NCC-PvPI received 81 ICSRs reporting SJS/TEN with the use of ofloxacin. The cases were reviewed by SRP at the NCC-PvPI, IPC, and a strong causal relationship between ofloxacin and SJS/TEN was found.

Phenobarbital

The NCC-PvPI, IPC has advised the CDSCO to incorporate drug reaction with eosinophilia and systemic symptoms (DRESS syndrome) as a clinically significant adverse drug reaction into the PIL for phenobarbital. Phenobarbital is indicated for the treatment of epilepsy. Between July 2011 to December 2018, the NCC-PvPI received 12 ICSRs of phenobarbital induced DRESS syndrome. The cases were reviewed by and a strong causal relationship between phenobarbital and DRESS syndrome was found.

Fidaxomicin

In a phase 3 clinical trial of fidaxomicin and vancomycin for the treatment of Clostridium difficile infection (CDI) in 148 pediatric patients, researchers found that at two days following end of treatment, the rate of confirmed clinical response was 77.6 percent for children randomized to fidaxomicin and 70.5 percent for vancomycin. At the end of the study, the rate of global C. difficile cure (confirmed clinical response without recurrence of CDI) was significantly higher among patients who received fidaxomicin compared to those who received vancomycin (68.4 vs. 50.0 percent).

Innovent, Eli Lilly introduce cancer-fighting drug

Innovent and Eli Lilly have introduced Tyvyt, a drug approved by the National Medical Products Administration of China to treat cancer.

Three Drugs for severe epileptic seizures are equally effective

Three drugs used to treat severe seizures in epilepsy patients are equally effective, a new study finds. The three medication levetiracetam, fosphenytoin (Cerebyx) and valproate are commonly used to treat patients with “refractory status epilepticus.” In these patients, severe seizures continue after treatment with benzodiazepine medications. The three treatments stopped seizures and improved responsiveness in about half of the patients: 47% in the levetiracetam group; 45% in the fosphenytoin group; and 46% in the valproate group.

HISTORY MAKER



In the early 1920s Frederick Banting and Charles Best discovered insulin under the directorship of John Macleod at the University of Toronto. With the help of James Collip insulin was purified, making it available for the successful treatment of Diabetes. Banting and Macleod earned a Nobel Prize for their work in 1923.

At the turn of the 20th century a strict low-calorie, no-carbohydrate diet was the only effective treatment for Diabetes. But this method, with food intake sometimes as low as 500 calories per day, had its consequences, as slow starvation, like Diabetes, drained patients of their strength and energy, leaving them semi-invalids. The diet treatment also required an inordinate amount of willpower on the part of the patient, very few of whom were able to maintain low-calorie diets over the long term. In 1921 researchers at the University of Toronto began a series of experiments that would ultimately lead to the isolation and commercial production of insulin—a pancreatic hormone essential for metabolizing carbohydrates—and the successful treatment of Diabetes.

CAUTION

6 RISKY DRUGS FOR SENIORS

HERE ARE 6 MOST RISKY CLASSES OF DRUGS FOR SENIORS:

- **Diabetes drugs** with a long half-life, in particular Diabinese (chlorpropamide) should be avoided by the elderly because of a risk of prolonged and serious hypoglycemia. Short-acting agents, such as Glucotrol (glipizide) are good alternatives.
- **Anticholinergic antihistamines**, such as diphenhydramine (Benadryl and others) should also be avoided if possible, as they can cause confusion, dry mouth, constipation, urinary retention, cognitive impairment, and delirium. Clearance of the drug from the body is slower in elderly patients. Alternatives include Allegra (fexofenadine) and Claritin (loratadine).
- **Muscle relaxants**, like Flexeril, Robaxin and others can also cause the types of anticholinergic effects listed above. Alternatives are to treat the underlying condition with physical therapy, ergonomics, and application of heat or cold.
- **Oral mineral oil** for constipation can be aspirated and cause an inflammation of the lungs. Alternatives are increased fiber in the diet plus adequate hydration — drinking lots of water.
- **Benzodiazepines**, such as Valium, should be used with caution in the elderly as they can cause or worsen cognitive impairment. They can also cause delirium, unsteady gait which leads to falls with serious consequences like hip fractures. Alternatives for anxiety are non-drug interventions such as behavioral therapy or relaxation techniques like yoga.
- **Triamterene and other potassium-sparing diuretics**, such as amiloride and spironolactone should be used with extreme caution in the elderly, who may have reduced renal function, as they can cause dangerous elevations in potassium levels which can cause serious or even lethal cardiac arrhythmias.



EATING CHILI PEPPERS MAY PREVENT FATAL HEART ATTACKS AND STROKE

Chili peppers aren't for the faint of heart, but maybe they should be. Scientists in Italy say the spice slashes the mortality rate from heart attack and cerebrovascular disease (which restricts blood flow to the brain and includes strokes and aneurysms). The study, published in the *Journal of the American College of Cardiology* recently, included 22,811 Italian men and women, who reported their chili pepper intake over an 8-year period. At the end of the study, people who consumed the spice at least four times a week reduced their risk

of dying from a heart attack by 44 percent and from cerebrovascular disease by 61 percent.

"WIDELY CONSUMED, CAPSAICIN HAS A LONG AND CONVOLUTED HISTORY OF DEBATE ABOUT WHETHER ITS CONSUMPTION OR TOPICAL USE IS ENTIRELY SAFE."

Study author Mari-aura Bonaccio, PhD, of IRCCS Neuromed Mediterranean Neurological Institute in Pozzilli, Italy, tells Yahoo Lifestyle that consuming chili peppers won't prevent heart attacks or stroke,

but rather the risk of fatality. Chili peppers get their heat from the compound capsaicin, which a Chinese study on hamsters associated with a reduction in cholesterol and with blocking the expression of a gene that makes blood vessels tighten. In animal studies, capsaicin also appears to minimize body fat, and when consumed with ginger may lower the risk of cancer. But some research has flagged capsaicin for its ties to cancer. According to the American Association for Cancer Research, "capsaicin can act as a carcinogen or as a cancer preventive agent," adding, "Although widely consumed, capsaicin has a long and convoluted history of debate about whether its consumption or topical use is entirely safe."

GHEE IS BACK IN VOGUE

Ghee has been our winter staple since time immemorial. According to experts, ghee is relatively safer 'grease' for Diabetes as opposed to salted butter and processed cheese. The fatty acids in ghee help in metabolising and balancing high blood sugar. Ghee consists of fat soluble vitamins, which aid weight loss. Ghee also plays a key role in balancing hormones and maintaining healthy cholesterol.



THREE CUPS OF FILTERED COFFEE MAY PROTECT YOU FROM DIABETES

In a good news for coffee lovers, researchers have found that coffee can help reduce the risk of developing type 2 Diabetes - but only filtered coffee, rather than boiled coffee. The study, published in the *Journal of Internal Medicine*, shows that the choice of preparation method influences the health effects of coffee. "We have identified specific molecules - 'biomarkers' - in the blood of those taking part in the study, which indicate the intake of different sorts of coffee. These biomarkers are then used for analysis when calculating type 2 Diabetes risk," said study researcher Rikard Landberg, Professor at Umea University. With the use of these biomarkers, the researchers were able to show that people who drank two to three cups of filtered coffee a day had a 60 per cent lower risk of developing type 2 Diabetes than people who drank less than one cup of filtered coffee a day. Consumption of boiled coffee had no effect on the Diabetes risk in the study.

Artificial Intelligence and Screening for Diabetic Retinopathy

Up to now, the global prevalence of diabetic retinopathy (DR) is 34.6%, which is equal to nearly 100 million people worldwide. Alarmingly, the prevalence of Diabetes is expected to increase at least 25% by 2030, which will bring a significant increase of the burden of DR.

Though most of vision loss from DR is avoidable through early detection and effective treatment strategies, DR screening programs are not widely implemented in many areas. This is mainly because inadequate availability of trained eye care personnel and financing, which is particularly important in the developing countries.

In the most recent 20 years, many studies tried to apply artificial intelligence (AI) aided method in DR screening with relatively small datasets (<1000 images). The machine-learning method used was including

support vector machine, random forest, k-nearest etc. Such studies had areas under the curve of the receiver operating characteristic curves (AUC) of up to 0.970. However, the algorithms built on such small training set usually were over-fitting and could not be generalized to external datasets.

In the wake of deep learning technique introduced by Prof. Hinton, several studies reported novel data on using AI for the detection of DR or referable DR. Gargeya et al. (2017) and Abramoff et al. (2016) validated their models using externally public datasets and reported high diagnostic accuracy for the classification of any DR with AUC of 0.94-0.98.

Google also developed a tool using AI to detect referable DR and reported excellent accuracy (AUC 0.99) when validated on external retinal images (almost 10000 fundus photographs).

In addition, Ting et al. developed an AI model used 76,370 retinal photographs and reported robust accuracy for referable DR and vision-threatening DR against 10 multi-ethnic retinal image datasets. We also trained an AI using almost 100,000 fundus images and further validated in Malay, Caucasian Australians and Indigenous Australians with high accuracy (a sensitivity of 92.5% and a specificity of 98.5%).

Recently, the FDA of the U.S. approved a software called IDx-DR as the first AI medical device to classify fundus images for DR when used a specific retinal camera named Topcon NW400.

Overall, AI for detecting DR had achieved excellent performance. However, there are still many problems need to be addressed before application of AI in to real-world setting.

Source: IDF

World's first insulin technology will provide better Diabetes care

Distinguished Professor Geoff Chase, from the University of Canterbury (UC) College of Engineering, is working on world's first insulin sensor technology to enable 'right now' measurement for managing type 2 Diabetes.

The development of insulin measurement technology will allow doctors and patients to make better decisions on treatment immediately, Distinguished Professor Chase says. People can find their blood sugar level from the well-known finger stick test and a glucometer, however, insulin can currently only be measured in a lab.

"What makes Point-of-Care insulin testing difficult is there is no known chemical reaction to test for. Unlike glucose, insulin has no polar-



ised charge, it doesn't carry voltage or respond to magnetic fields, radio frequency or microwaves." Thus, it is something of a "stealth" molecule in terms of making it easy to detect, he says.

Professor Chase is working with Director of UC's Biomolecular Interaction Centre, Dr. Volker Nock and postdoctoral fellow Dr. Rebecca Soffe from

Electrical and Computer Engineering and Mechanical Engineering Senior Lecturer Dr. Stefanie Gutschmidt to develop Lab-on-a-Chip technology using micro-fluidics, specialised bio-receptors, and novel micro-electro-mechanical-system (MEMS) technology modelling to detect insulin in a sample fluid.

"The fixed volume of the liquid will stick to the microchip allowing the rest to run off. This changes the mass and thickness of the MEMS array elements which in turn lets us 'see' that mass of insulin by the way it changes the dynamic properties of the MEMS device arrays.

Currently, insulin measurement requires lab processing of a blood sample, which takes 1-3 days for a result. The process and delay makes the test only beneficial to initially diagnose type 2 Diabetes, not managing continued care.

Source: Medical Xpress

Why Ageing should be called a Disease

The world's population is Ageing; recognizing old age as a disease will encourage scientists and investors to find treatment for it.

You can dodge the tax man but old age and death spare no one. However, some scientists are rejecting this ancient wisdom now. They say ageing is not inevitable. It is just another disease that would be curable if governments and industry went after it with enough resources. They pointed to examples in nature that defy the "death is inevitable" rule. Many of North America's bristlecone pines, for instance, have been standing for more than 5,000 years. Some sea creatures also show signs of immortality.

Last year, some of these scientists unsuccessfully petitioned WHO to include ageing in its list of diseases. Those opposed to their view worry that declaring ageing a disease will increase the difficulties old people face. "Ageism is the biggest 'ism' we have today in the world. People are fired from work because they are old," says Nir Barzilai, Director of the Institute for Ageing Research at the Albert Einstein College of Medicine in New York.

Sven Bulterijs, co-founder of the Healthy Life Extension Society in Brussels, says it is a weak argument. "We don't say for cancer that it's insulting to call it a disease." He wants scientists to find a cure for ageing, but that's unlikely until ageing is recognized as a disease.

"If ageing were a treatable condition, the money would flow into research innovation and drug development," say Harvard Medical School geneticists David Sinclair, one of the leading campaigners for declaring ageing a disease. As things stand now, "what pharmaceutical or biotech company would go after ageing



“

Death is inevitable but ageing is not

”

Dr. Nir Barzilai

Founding Director of the Institute for Ageing Research at the Albert Einstein College of Medicine, USA

er ageing a disease, he says research is needed to ensure all of us can live to 115 or whatever age nature has fixed as the upper limit for our species. "So we have 35 years that we are not realizing now," he says.

Critics say viewing ageing as a treatable disease takes away the incentive to live healthy. Why would people eat sensibly and exercise if a drug or therapy will repair the damage and let them live to 115 years, if not forever?

Nonetheless, countries like Japan and Singapore, where the population is ageing fast, are taking a keen interest in making old age healthier so that old people can support themselves. "If we don't do something about the dramatic increase in older people, and find ways to keep them healthy and functional, then we have a major quality-of-life issue and a major economic issue on our hands," says Brian Kennedy, Director of Singapore's Centre for Healthy Ageing.

Long studies on mice, worms and other organisms have helped scientists find treatments to extend life and improve health in old age. Barzilai is leading a human trial targeting ageing with an old Diabetes drug called metformin that has been found to protect against frailty, Alzheimer's and cancer in animals. It will be given to people aged 65-70 years, to see if it delays cancer, dementia, stroke, heart attacks and other problems in old age.

Another class of compounds that nudges damaged cells to self-destruct, so that the immune system can remove them, is also being studied. But the goal is to find the central mechanism of ageing and decline, which could make other treatments for age-related diseases unnecessary.

as a condition if it doesn't exist?"

Sinclair and others on his side say, instead of regarding physical frailty and dementia as diseases that strike in old age, we should consider them symptoms of a bigger disease called ageing. That's why, Sinclair says, "identifying the molecular mechanism and treatments of ageing should be an urgent priority."

While Sinclair, Barzilai, Bulterijs and others have been working to make old age a better time, official recognition of ageing as a disease will speed up research. Sinclair says it will also be key to increasing life expectancy, which has crossed 80 years in a few countries.

Although Barzilai does not consid-

Source: Times of India



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Khagan, Savar, Dhaka, Bangladesh.



Azix®
Azithromycin 500mg Tab.
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Top 10 Medical Innovations for 2020

- Dual-acting osteoporosis drug:** The recent FDA approval of romo-sozumab, a new dual-acting drug is giving patients with osteoporosis more control in preventing additional fractures.
- Expanded use of minimally invasive mitral valve surgery:** Expanding the approval of a minimally invasive valve repair device to a population of patients who have failed to get symptom relief from other therapies provides an important new treatment option.
- Inaugural medication for transthyretin amyloid cardiomyopathy:** It is a progressive, underdiagnosed, potentially fatal disease in which amyloid protein fibrils deposit in and stiffen the walls of the heart's left ventricle. But a new agent to prevent misfolding of the deposited protein is showing a significantly reduced risk of death. Following Fast-Track and Break-through designations in 2017 and 2018, 2019 marked the FDA approval of tafamidis, the first-ever medication for treatment of this increasingly recognized condition.
- Therapy for mitigation of peanut allergies:** Development of a new oral immunotherapy medication to gradually build tolerance to peanut exposure holds the opportunity to lend protection against attack.

- Closed-loop spinal cord stimulation:** Implantable devices provide electrical stimulus to the spinal cord but unsatisfactory outcomes due to subtherapeutic or overstimulation events are common. Closed-loop stimulation is allowing for better communication between the device and the spinal cord providing more optimal stimulation and relief of chronic pain.
- Biologics in orthopedic repair:** Biologics – (cells, blood components, growth factors) – have the power to replace or harness the body's own power and promote healing. These elements are finding their way into orthopedic care, allowing for the possibility of expedited improved outcomes.
- Antibiotic envelope for cardiac implantable device infection prevention:** Antibiotic-embedded envelopes are now made to encase implantable cardiac electronic device, effectively preventing infection.
- Bempedoic acid for cholesterol lowering in statin intolerant patients:** Bempedoic acid provides an alternative approach to lowering of LDL-cholesterol while avoiding these side effects.
- PARP inhibitors for maintenance therapy in ovarian cancer:** One of the most recent important advances ovarian cancer treatment, PARP or poly-ADP ribose polymerase inhibitors have improved progression-free survival and are now being approved for first-line maintenance therapy in advanced stage disease.
- Drugs for heart failure with preserved ejection fraction:** Currently, recommendations for treatment are directed at accompanying conditions and mere symptom relief. But SGLT2 inhibitors, a class of medications used in the treatment of type 2 Diabetes, is now being explored in HFpEF alluding to a potential new treatment option.

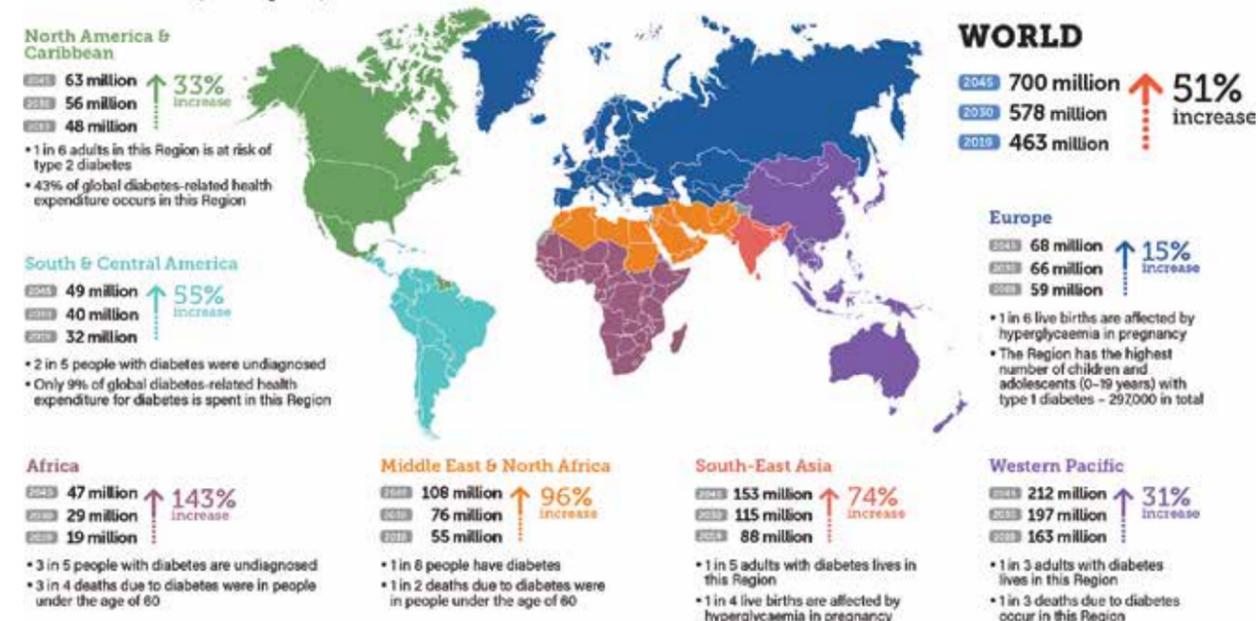


SCIENTISTS IN INDIA INVENT DETECTION DEVICE FOR EARLY DIAGNOSIS OF HEART ATTACK

A team of researchers from the Indian Institute of Technology (IIT) Hyderabad has developed a microfluidic device for early diagnosis of heart attack. A cardiac biomarker – cardiac troponin I – that is widely used for early diagnosis of acute heart attack can now be detected in about three minutes and even when present at very low concentration. The heart cells that get damaged during heart attack cause the expression of cardiac muscle proteins such as the biomarker cardiac troponin I, which get released into the blood. Detecting the biomarker in the blood serum helps in early diagnosis of heart attack. The researchers have successfully integrated the microfluidic device with chitosan coated nickel vanadate nanospheres to enable rapid detection and better sensitivity. The team plans to undertake large trials involving many patient samples before it can be used commercially.

The 2019 World Diabetes Atlas Is Out!

Number of adults (20–79 years) with diabetes worldwide



The International Diabetes Federation published the 9th edition of the World Diabetes Atlas in celebration of World Diabetes Day. The World Diabetes Atlas provides a comprehensive overview of statistics regarding Diabetes, including prevalence of Diabetes today but also estimates into the future.

The Atlas outlines the individual, social and economic impact of Diabetes globally and by region and looks at Diabetes prevalence from a demographic and geographic point of view. I must admit that I have been waiting for the 9th edition to come out for few months already. I really look forward to digging into the statistics and will be sharing some of the findings in future blog posts.

The World Diabetes Atlas was first published in 2000. Since then, the prevalence of Diabetes (combining type 1 and type 2) has risen from 151 million and 463 million persons living with Diabetes today. These are staggering numbers. This means that 9.3% of the global population has Diabetes. If we don't manage to reverse this trend, the numbers are expected to reach 578 million in 2030. By 2045, there could be

700 million people living with Diabetes. We must do whatever we can to prevent this prediction coming true.

It seems that most countries around the world are falling short of the target set by the World Health Organization (WHO) to halt the rise of type 2 Diabetes by 2025. In many countries a national Diabetes plan is still missing and at least half the world's population lives without coverage for essential healthcare. A concerted effort by the international community and national campaigns is required to further prevent type 2 Diabetes and to improve management of all types of Diabetes.

This is of paramount importance as with early diagnosis and access to appropriate care, Diabetes can be managed and its complications in most cases prevented.

The World Diabetes Atlas serves to outline the latest figures and projections as regards Diabetes worldwide. It includes comprehensive information about what is Diabetes, statistics for the different types of Diabetes and prevalence of Diabetes by regions. It highlights the nature of various complications associated with Diabetes, such as diabetic eye and kidney disease, their prevalence and

economic impact. Here is an example of the information provided in the World Diabetes Atlas:

- Approximately 463 million adults (20-79 years) were living with Diabetes in 2019; by 2045 this will rise to 700 million
- The proportion of people with type 2 Diabetes is increasing in most countries
- 79% of adults with Diabetes were living in low- and middle-income countries
- 1 in 2 (232 million) people with Diabetes were undiagnosed
- Diabetes caused 4.2 million deaths
- Diabetes caused at least USD 760 billion dollars in health expenditure in 2019 – 10% of total spending on adults
- More than 1.1 million children and adolescents are living with type 1 Diabetes
- 374 million people are at increased risk of developing type 2 Diabetes

The World Diabetes Atlas provides a solid baseline for policy makers and others involved in Diabetes management. Only by acknowledging and understanding the facts and the numbers regarding Diabetes worldwide, will we be able to make a significant dent in preventing and improving the lives of those living with Diabetes in the world.

Source: RetinaRisk

DOLABI®

Natural medicine for diabetes

Indication

- Diabetes Mellitus



Dosage

1-2 tablet(s) should be taken 30 minutes before meal 2 times daily or as prescribed by the registered physician.

ALISA

Garlitab

Ensures better health & wellness

Indication

- Hyperlipidemia
- Hypertension
- Diabetes
- Asthma
- Throat infection
- Rheumatism
- Gout
- Dyspepsia
- Flatulence



Dosage

1-2 tablet(s) 2-3 times daily after meal or as prescribed by the registered physician.

DIABEAT

Controls diabetes

Indication

- Diabetes Mellitus



Dosage

2 capsules 2 times daily 1 hour before meal or as prescribed by the registered physician.

SAFI®

Natural blood purifier

Indication

- Blood impurities
- Skin diseases
- Nose bleeding
- Constipation
- Obesity
- Burning urination



Helps to stay slim and smart

Dosage

Safi Syrup: Adult: 2-4 teaspoonfuls 1-2 time(s) daily
Children: ½-1 teaspoonful 1-2 time(s) daily
Safi Capsule: 1 capsule 2 times daily or as prescribed by the registered physician.

Diabetes treatment reduces risk of kidney failure

The US Food and Drug Administration (FDA) approved canagliflozin (Invokana, Janssen) to reduce the risk of end-stage kidney disease, worsening of kidney function, cardiovascular death, and hospitalization for heart failure in adults with type 2 Diabetes and chronic kidney disease (CKD). The European Medicines Agency (EMA) accepted the licence extension submission (August 23, 2019) for canagliflozin to treat stage two or stage three CKD and albuminuria as an adjunct to standard of care in adults with type 2 Diabetes.

FDA Approves Rybelsus, First Oral GLP-1 Medicine

The U.S. Food and Drug Administration (FDA) has approved the first oral GLP-1 medicine for blood sugar management in adults with type 2 Diabetes. Manufactured by Novo Nordisk, Rybelsus (semaglutide) oral tablets are the first drug in their class that do not need to be injected. A member of the class of medicines known as GLP-1 inhibitors, it works by increasing feelings of fullness, slowing stomach emptying, increasing the release of insulin, and decreasing the release of glucagon. It is administered once daily and is approved for use in two therapeutic dosages, 7 mg and 14 mg. Rybelsus more effectively lowered blood sugar than sitagliptin and empagliflozin. Furthermore, treatment with Rybelsus resulted in up to 4.4 kg reduction in body weight.

FDA Approved Fetroja for Treatment of Complicated Urinary Tract Infections

The USFDA approved Fetroja (cefiderocol), an antibacterial drug for the treatment of patients 18 years of age or older with complicated urinary tract infections (cUTI), including kidney infections caused by susceptible Gram-negative microorganisms, who have limited or no alternative treatment options.

FDA Approves Talicia

RedHill Biopharma Ltd. a specialty biopharmaceutical company primarily focused on the development and commercialization of proprietary drugs for the treatment of gastrointestinal diseases, announced that the U.S. Food and Drug Administration (FDA) has approved Talicia (omeprazole magnesium, amoxicillin and rifabutin) delayed-release capsules 10 mg/1250 mg/12.5 mg for the treatment of Helicobacter pylori (H. pylori) infection in adults. RedHill expects to launch Talicia1 in the U.S. in the first quarter of 2020 with its dedicated sales force.

FDA Approved Use of Vascepa

The US FDA approved the use of Vascepa (icosapent ethyl) as an adjunctive (secondary) therapy to reduce the risk of cardiovascular events among adults with elevated triglyceride levels (a type of fat in the blood) of 150 milligrams per deciliter or higher. Patients must also have either established cardiovascular disease or Diabetes and two or more additional risk factors for cardiovascular disease. Vascepa is the first FDA approved drug to reduce cardiovascular risk among patients with elevated triglyceride levels as an add-on to maximally tolerated statin therapy.

FDA Approved Expanded Indication for Sanofi's Toujeo

The US. Food and Drug Administration (FDA) approved an expanded indication for Sanofi's Toujeo (insulin glargine injection) for blood sugar control in adult and pediatric patients who are ages six years and older. This applies to both type 1 and 2 Diabetes. Previously, Toujeo was approved only for adults aged 18 years and older.

FDA Approves Ibsrela (tenapanor) for the Treatment of Irritable Bowel Syndrome with Constipation

The U.S. Food and Drug Administration has approved Ibsrela (tenapanor), a 50 mg, twice daily oral pill for the treatment of irritable bowel syndrome with constipation (IBS-C) in adults. Ibsrela is a minimally-absorbed small molecule that acts locally in the gastrointestinal (GI) tract to inhibit the sodium-hydrogen exchanger NHE3, resulting in an increase in bowel movements and a decrease in abdominal pain for IBS-C patients.

FDA Approves Abrilada

Pfizer Inc. announced the USA FDA has approved Abrilada™ (adalimumab-afzb), as a biosimilar to Humira® (adalimumab), for the treatment of certain patients with rheumatoid arthritis, juvenile idiopathic arthritis, psoriatic arthritis, ankylosing spondylitis, adult Crohn's disease, ulcerative colitis and plaque psoriasis.

FDA Granted Approval to Celgene Reblozyl

The US FDA granted approval to Reblozyl (luspatercept-aamt) for the treatment of anemia (lack of red blood cells) in adult patients with beta thalassemia who require regular red blood cell (RBC) transfusions. Beta thalassemia, also called "Cooley's anemia," is an inherited blood disorder that reduces the production of hemoglobin, an iron-containing protein in red blood cells that carries oxygen to cells throughout the body.



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DIABETIC FOOT



People with Diabetes are prone to foot problems that develop due to prolonged periods of high blood sugar levels.

The two main diabetic foot problems are

Diabetic neuropathy: Over time, Diabetes can cause nerve damage that leads to numbness in the feet. This can make it hard for people with Diabetes to feel sensation in their extremities. This lack of sensation can lead to an increased risk of cuts, sores, and blisters. If a person does not receive treatment for an infection, ulcers and even gangrene can develop. If a person develops gangrene, they may require an amputation.

Peripheral vascular disease: Fatty deposits block vessels beyond the brain and heart. It tends to affect blood vessels leading to and from the extremities, such as the hands and feet, reducing blood flow to both.

Symptoms might include

A loss of feeling, numbness or tingling sensation, blisters or other wounds without pain, skin discoloration and temperature changes, red streaks, wounds with or without drainage, painful tingling, staining on socks.

Treatments

Nonsurgical treatment: A doctor will first attempt to treat diabetic foot problems without using surgery. Some methods include:

- keeping wounds clean and dressed
- wearing immobilization devices, such as a cast boot or total contact cast
- closely observing any gangrene on the toes until self-amputation occurs, which is when the toes fall off due to lack of blood flow

Surgical treatment: When nonsurgical treatment does not successfully heal diabetic foot problems, the doctor might consider surgery. Surgical options include:

- the removal of decaying or dead tissue
- amputation, ranging from single toes or sections of foot to amputation of the leg below or even above the knee
- surgical stabilization of Charcot's Foot

Prevention

While controlling blood sugar by following the recommended Diabetes treatment plans is the best way to prevent these serious problems, self-care and regular check-ups with a doctor can also help.

GLOSSARY OF Diabetes Terms

Beta cells: Beta cells are found in the pancreas that produce, store and release insulin.

Diabetes (mellitus): A condition that arises when the pancreas does not produce enough insulin or when the body cannot effectively use insulin. The three most common types of Diabetes are: type 1, type 2, and gestational.

Diabetic foot: A foot that exhibits any disease that results directly from Diabetes or a complication of Diabetes.

Gestational Diabetes mellitus (GDM): Hyperglycaemia (high blood glucose level) that is first detected during pregnancy is classified as either gestational Diabetes mellitus (GDM) or Diabetes mellitus in pregnancy. Women with slightly elevated blood glucose levels are classified as having GDM and women with substantially elevated blood glucose levels are classified as women with Diabetes in pregnancy.

Glucagon: A hormone produced in the pancreas. If blood glucose levels decrease, it triggers the body to release stored glucose into the blood stream.

Glycogen: A form of glucose that is used for storing energy in the liver and muscles. If blood glucose levels decrease, the hormone glucagon triggers the body to convert glycogen to glucose and release it into the blood stream.

Glycosylated haemoglobin A1c (HbA1c): Haemoglobin to which glucose is bound. Glycosylated haemoglobin is tested to determine the average level of blood glucose over the past two to three months.

Hyperglycaemia: A raised level of glucose in the blood. It occurs when the body does not have enough insulin or cannot use the insulin it has to turn glucose into energy. Signs of hyperglycaemia include excessive thirst, dry mouth and need to urinate often.

Hypoglycaemia: A lowered level of glucose in the blood. This occurs when a person with Diabetes has injected too much insulin, eaten too little food, or has exercised without extra food. A person with hypoglycaemia may feel nervous, shaky, weak, or sweaty and have a headache, blurred vision and hunger.

Impaired fasting glucose (IFG): Blood glucose that is higher than normal blood glucose, but below the diagnostic threshold for Diabetes after fasting (typically after an overnight fast).

Insulin: A hormone produced in the pancreas. If blood glucose levels increase, insulin triggers cells to take up glucose from the blood stream and convert it to energy, and the liver to take up glucose from the blood stream and store it as glycogen.

Monogenic Diabetes: A less common type of Diabetes, which arises as a result of a genetic mutation.

Pancreas: An organ located behind the stomach that produces several important hormones, including insulin and glucagon.

Periodontitis: Also known as gum disease. Inflammatory disease that affects the tissues that surround and support the teeth.

Retinopathy: A disease of the retina of the eye, which may cause visual impairment and blindness.

Brand Name	Generic Name	Manufacturer	Date of Approval	Treatment
Vyondys 53 Injection	Golodirsén	Sarepta Therapeutics	Dec 12, 2019	Duchenne Muscular Dystrophy
EluRyng Vaginal Ring	Ethinyl estradiol and etonogestrel	Amneal Pharmaceuticals LLC	Dec 11, 2019	Contraception
Avsola	Infliximab-axxq	Amgen Inc.	Dec 06, 2019	Crohn's Disease –Maintenance, Ulcerative Colitis, Rheumatoid Arthritis, Ankylosing Spondylitis, Psoriatic Arthritis, Plaque Psoriasis
RediTrex Injection	Methotrexate	Cumberland Pharmaceuticals Inc.	Nov 27, 2019	Rheumatoid Arthritis, Juvenile Idiopathic Arthritis, Psoriasis
Oxbryta Tablets	Voxelotor	Global Blood Therapeutics, Inc.	Nov 25, 2019	Sickle Cell Anemia
Exservan Oral Film	Riluzole	Aquestive Therapeutics, Inc.	Nov 22, 2019	Amyotrophic Lateral Sclerosis
Xcopri Tablets	Cenobamate	SK Life Science, Inc.	Nov 21, 2019	Seizures
Givlaari Injection	Givosiran	Alnylam Pharmaceuticals, Inc.	Nov 20, 2019	Acute Hepatic Porphyria
Abrilada Injection	Adalimumab-afzb	Pfizer Inc.	Nov 15, 2019	Rheumatoid Arthritis, Juvenile Idiopathic Arthritis, Psoriatic Arthritis, Ankylosing Spondylitis, Crohn's Disease – Maintenance, Ulcerative Colitis, Plaque Psoriasis
Adakveo Injection	Crizanlizumab-tmca	Novartis Pharmaceuticals Corporation	Nov 15, 2019	Sickle Cell Anemia
Brukinsa Capsules	Zanubrutinib	BeiGene, Ltd.	Nov 14, 2019	Mantle Cell Lymphoma
Fetroja Injection	Cefiderocol	Shionogi Inc.	Nov 14, 2019	Complicated Urinary Tract Infections
Reblozyl	Luspatercept-aamt	Celgene Corporation	Nov 8, 2019	Beta-Thalassemia-Associated Anemia
Talicia Delayed-Release Capsules	Amoxicillin, Omeprazole and Rifabutin	RedHill Biopharma Ltd.	Nov 4, 2019	Treatment for: Helicobacter pylori Infection
Ziextenzo Injection	Pegfilgrastim-bmez	Sandoz	Nov 4, 2019	Neutropenia Associated with Chemotherapy
Vumerity Delayed-Release Capsules	Diroximel Fumarate	Biogen	Oct 29, 2019	Multiple Sclerosis
Trikafta	Elexacaftor, Ivacaftor and Tezacaftor	Vertex Pharmaceuticals Incorporated	Oct 21, 2019	Cystic Fibrosis
Biorphen Injection	Phenylephrine Hydrochloride	Eton Pharmaceuticals, Inc.	Oct 21, 2019	Hypotension
Amzeeq Topical Foam	Minocycline	Foamix Pharmaceuticals	Oct 18, 2019	Acne
Reyvow Tablets	Lasmiditan	Eli Lilly and Company	Oct 11, 2019	Migraine
Secuado Transdermal System	Asenapine	Noven Pharmaceuticals, Inc.	Oct 11, 2019	Schizophrenia
Scenesse	Afamelanotide	Clinuvel Pharmaceuticals Ltd.	Oct 8, 2019	Erythropoietic Protoporphyrria
Beovu Injection	Brolucizumab-dbil	Novartis Pharmaceuticals Corporation	Oct 7, 2019	Macular Degeneration
Bonsity Injection - formerly PF708	Teriparatide	Pfenex Inc.	Oct 04, 2019	Osteoporosis
Aklief Topical Cream	Trifarotene	Galderma Laboratories, L.P.	Oct 04, 2019	Acne
Jynneos Injection	Smallpox & Monkeypox Vaccine	Bavarian Nordic	Sept 24, 2019	Prevention of Smallpox; Prevention of Monkeypox
Rybelsus Tablets	Semaglutide	Novo Nordisk	Sept 20, 2019	Diabetes Type 2



State University of Bangladesh Inaugurates “6th Pharma Career Fair 2019”

“Connecting Dreams With Opportunities” - keeping with this theme, Dr. A. M. Shamim, President of the ‘Board of Trustee’ of State University of Bangladesh, inaugurated the fair for Pharmacists and other graduates. Professor M. Shahjahan Mina (Vice Chancellor of State University of Bangladesh), Professor Dr. M. A. Rashid, (Advisor of Department of Pharmacy of State University of Bangladesh and Former Dean of the Faculty of Pharmacy, University of Dhaka), Professor Md. Saiful Islam Pathan (Head of the Department), Professor Dr. Md. Moklesur Rahman Sarker (Head of Academic and Research Affairs), Dr. Md. Hassan Kawsar (General Secretary of Bangladesh Pharmaceutical Society and professor of the department), Mr. Md. Shariful Islam (Convener of the Organizing Committee of the 6th Pharma Career Fair 2019) and all the teachers and students of the department attended the fair. After the commencement of the fair, the guests reconnoit-

tered different stalls and laboratories of the department. The president of Board of Trustees and other guests praised this great initiative taken by the State University of Bangladesh to organize Pharma Career Fair every year and commented it as a milestone in the development of the pharmacy profession.

33 companies including Labaid Pharmaceuticals Ltd., Oponin Pharma Ltd., Renata Ltd., ACI Ltd., The ACME Laboratories Ltd., Labaid Hospital and Diagnostics, General Pharmaceuticals Ltd., Radiant Pharmaceuticals Ltd., Beacon Pharmaceuticals Ltd., Biopharma Limited, Delta Pharmaceuticals Ltd., Social Marketing Company (SMC), Techno Drugs Ltd., Navana Pharmaceuticals Ltd., Hamdard Laboratories (Waqf) Bangladesh, Veritas Pharmaceuticals Ltd., Pacific Pharmaceuticals Ltd., Novo Healthcare & Pharma Ltd., Alco Pharma Ltd., Concord Pharmaceuticals Ltd., Ethical Drugs Ltd., Nipa Pharmaceuticals Ltd.,

Sharif Pharmaceuticals Ltd., Pharma Raw Bangladesh, Kumudini Pharma Ltd., Root Bangladesh Ltd., Green Life Natural Healthcare, S.B. Laboratories (Ayurvedic) Ltd., Ibn Haisam Herbal & Nutraceuticals, Eon Pharmaceuticals Ltd; Modern Herbal Group, Drug Fair Pharmaceuticals (Unani), Lushai Trading Company participated in the fair, including job aspirants coming from different universities of the country enthusiastically visited the first day of the fair.

Participating companies collected CV of job candidates, made spot interviews and exhibited various types of features at the fair. The two-day fair will also had important seminars on various topics related to career formation, mock interviews, and various events, where job aspirants were inspired by top executives of the Human Resources Division of the country’s first-row pharma companies.

The job fair ended with a cultural event and dinner.

Oath-taking Ceremony held at the Department of Pharmacy of Primeasia University

An Oath-taking Ceremony followed by a Cultural Program was organized by the Department of Pharmacy, Primeasia University, in honor of the out-going students of 161 batch of B. Pharm. (Hons.) Program on recently at the IQAC Conference Hall of Primeasia University. Vice Chancellor of Primeasia University, Prof. Dr. Abdul Hannan Chowdhury graced the occasion as the chief guest. Treasurer, A.K.M. Ashraful Haque, Registrar, Abul Kashem Molla and Dean, School of Biological Science, Prof. Dr. A.J.M. Omar Faruque were present as special guests. All the faculty members, staff and students of the Pharmacy Department as well as many distinguished guests attended the program.

The Oath-taking ceremony began with recitation from the Holy Quran. The Ceremony was then

inaugurated by the Hon’ble Program Chair, Prof. Dr. Abdul Ghani, Chairman, Department of Pharmacy. A number of students then delivered their speeches on behalf of the students of the Pharmacy Department. They expressed their deep love and gratitude for their teachers and acknowledged all the facilities that have been provided by Primeasia University to the Department of Pharmacy. The Ceremony continued with speeches of the Adviser of the Department, Prof. Sk. Feroz Uddin Ahmed, Special Guests and the Chief Guest.

Vice Chancellor, Primeasia University, Prof. Dr. Abdul Hannan Chowdhury formally conducted the Oath, taken by the students of 161 batch.

After the lunch and prayer break, the program ended with a colorful cultural program staged by the students.



EUTGA APPROVALS

EC APPROVES ASTRAZENECA'S TYPE 2 DIABETES DRUG QTRILMET

AstraZeneca’s Qtrilmet, or metformin hydrochloride, saxagliptin and dapagliflozin, was approved by the European Commission to treat type 2 Diabetes in adults. Data from a comparative study showed the drug met its primary endpoint of mean A1C change from baseline.

NEW DARZALEX FORMULATION APPROVED IN EU

The European Commission granted extended marketing authorization to Johnson & Johnson’s Janssen unit for the new formulation of its triple-drug regimen of Darzalex, or daratumumab, combined with Celgene’s Revlimid, or lenalidomide plus dexamethasone, to treat newly diagnosed patients with multiple myeloma who cannot undergo an autologous stem cell transplant.

TGA APPROVES MAINSTAY'S NEUROSTIMULATION IMPLANT

Mainstay Medical’s ReActiv8 system, a neurostimulation implant used to treat chronic lumbar pain, has been approved by the Australian Therapeutic Goods Administration.

TGA APPROVES NEW DRUG FOR DIABETES INDUCED VISION LOSS

Australian patients with Diabetes-induced eye disease can now access a new treatment option that provides consistent and continuous treatment with long-lasting effect. The Therapeutic Goods Administration (TGA) has now approved the drug ILUVIEN® (flucinolone acetonide intravitreal implant), which delivers flucinolone acetonide via a sustained release implant and provides therapeutic effect for up to 36 months. It is available to people who have vision impairment associated with chronic diabetic macular oedema (DME), and who have been previously treated with a course of corticosteroids.

Wish to export to Philippines?

Overview

The Philippines is a lower/middle income country, where only a minority of the population has access to adequate healthcare. It has a strong local drug industry & has clocked \$ 3.23 billion in 2017. It is expected to touch \$ 3.82 bn by 2021 with a Cagr of 2.5%.

The generic drug subsector forms the largest portion of the market (44.7%), valued at USD1.51bn in 2016. Unusually for a lower/middle income country, branded medicine accounts for relatively large share of market.

The country aims to implement universal healthcare, similar to other

Association of South East Asia Nation (ASEAN) members such as Indonesia, Vietnam, Laos & Myanmar. This plan will require the government to rein in high drug prices in order to keep healthcare affordable for residents. Therefore, over the long term, profit margins for pharmaceutical firm will be narrowed but they will be able to grow based on volume sales.

Philippines pharmaceutical market

The Filipino pharmaceutical market in 1999 was estimated to be about 36.83 billion pesos (about delete extra space \$900 million). After Japan, Korea and Taiwan, the Filipino pharmaceutical market is the fourth largest in Asia. The market grew about 5.0% in 1999. Pharmaceutical products (both ethical and OTC) are primarily distributed to customers via pharmacies (78%), hospitals (13%) and other channels (9%). Mercury Drug Stores is the largest pharmaceutical chain in the Philippines with about half of the overall pharmacy business. Major areas where therapeutic products are used include anti-infective, respiratory, cardiovascular and the central nervous system. Leading ethical products in the market include Ventolin (Glaxo), Augmentin (Smith Kline), Ponstan (Warner Lambert), Plendl (Astra) and Propan Iron (Rorer). While the Philippines is a large geographic area (about the size as Italy) made up of many islands (20 islands account for 92% of the landmass), the Metro Manila area accounts for about 50% of the pharmaceutical market, the Luzon area about 25% and the remainder split between the Visayas and Mindanao regions.

Pharmaceutical healthcare association of the philippines (PHAP)

The PHAP is an association composed of local and multinational

pharmaceutical manufacturers, traders, distributors and retailers. Affiliated with PHAP are six professional organizations within the healthcare industry such as the Marketing Executives in the Pharmaceutical Industry (MEPI), Pharmaceutical Executives of the Philippines (PEP), Philippine Pharmaceutical Manufacturers Association (PPMA), Philippine Association of Pharmacists in the Pharmaceutical Industry (PAPPI), Association of Pharmaceutical Trainers (APT) and the Philippine College of Pharmaceutical Medicine which is affiliated as a society of the Philippine Medical Association. Mr. Leo P. Wassmer, Jr. is the Executive Vice President and Chief Executive Officer of PHAP, a position he assumed after his retirement as General Manager of Eli-Lilly (Philippines), Inc. in 1990.

Product registration

While rules and regulations with respect to most things in the Philippines are quite "fluid", the pharmaceutical product registration environment is no different. The checklists below should be helpful in navigating the process.

1. Letter of application
2. Copy of valid certificate of brand name clearance.
3. Copy of valid agreement between manufacturer and trader/distributor/importer/exporter
4. Unit dose and batch formulation.
5. Technical specifications of all raw materials
6. Certificate of analysis of active raw material(s)
7. Certificate of analysis of finished product.
8. Technical specifications of finished product.

For imported drug product

1. Certificate of free sale from country of origin.

2. Government certificate attesting to the status of the manufacturer as to competency, reliability of personnel and facilities.
3. Authenticated by territorial Philippine Consulate.

Renewal of Registration

- Only drug products registered for general and restricted use are eligible for renewal registration.
- Application for renewal of registration shall be made on a form promulgated by BFAD.
- Renewal application shall be reviewed and evaluated on the basis of the product and the applicant meeting the current BFAD standards of identity, purity, strength, quality, safety, efficacy and therapeutic value.
- **Renewal of registration** - P300 per year or P1,500 for 5 years + cost of laboratory analysis

Registration fees

- **Investigational drug** - P1,000 per year or any application fraction thereof
- **New drug application** - P2,000 or P6,000 for 3 year. For provisional monitored + cost of laboratory release analysis
- **New drug application for** - P2,000 or P10,000 for years. General or restricted use + cost of laboratory analysis
- **Tried and Tested or Established drug or their Pharmaceutical or therapeutic Innovations Generic drug** - P500 per year or P2,500 for 5 years + cost of laboratory
- **Analysis Branded drug** - P1,000 per year or P5,000 For 5 years + cost of laboratory Analysis



QUICK HIT

- ➔ Sanofi will no longer invest in cardiovascular and Diabetes research and will turn its attention to cancer drugs. The company makes Lantus, but has yet to find another breakthrough Diabetes drug.
- ➔ Innovent and Eli Lilly have introduced Tyvyt, a drug approved by the National Medical Products Administration of China to treat cancer.
- ➔ The World Health Organization estimates that 422 million people (or one in 11) have Diabetes
- ➔ In 2016, an estimated 1.6 million deaths were directly caused by Diabetes. Another 2.2 million deaths were attributable to high blood glucose in 2012.
- ➔ International Diabetes Federation reported that over 50% of people with Diabetes in south Asia were unaware of their condition.
- ➔ According to International Diabetes Federation (IDF), 1 in 2 (232 million) people with Diabetes were undiagnosed
- ➔ Diabetes was responsible for four million deaths in 2017.
- ➔ ICDDR,B, Bangladesh has seen an 8.7 per cent rise (from 58.3% to 66.9%) between 2010 and 2016 in deaths related to NCDs.

Eminence Business Media Organizes 3rd Annual Pharma Project & Portfolio Management Summit 2020

Eminence Business Media proudly presents the "3rd Annual Pharma Project & Portfolio Management Summit 2020" scheduled for January 23th – 24th, 2020 at Hotel Hilton, Mumbai.

For the past two editions we have thrived on our unique event format and content. After deliberating with the experts with many years of experience in the industry, we have designed the next edition focusing on the latest demand and changes of portfolio & project managers.

Whether you are looking at adapting portfolio governance, project management under complex constraints of Pharmaceutical world, or actively advocating your PMO for dynamic flexible process options, this

event will have something new to offer.

Witness the first ever moot-court session during this 2 day summit and also be a part of Young Minds Converse where young project/portfolio managers will present their white paper research. Don't miss out on the opportunity to network with industry peers and share in the ideas and discussion that are shaping the next developments in portfolio and project management in pharma.

Which teams should attend:

- Project Management
- Portfolio Management
- Program Management
- IP Management
- QA/QC

DID YOU KNOW ?

Researchers at Okayama University in Japan have developed an early gastric cancer endoscopic diagnosis system using artificial intelligence (AI). First the prototype of the system to obtain the depth of early gastric cancer was constructed with GoogLeNet to match purpose (metastatic learning) by using the image recognition ability of CNN (Convolutional Neural Network) published by Google on numerical analysis software MATLAB.Next, the researchers used the ResNet, which is a 152-layer convolutional neural network, to conduct intramucosal endoscopic resection among patients treated for early gastric cancer at Okayama University Hospital.

APUA EVENT – You can't afford to miss!

Event	Venue	Date
19th ICID Kuala Lumpur	Kuala Lumpur, Malaysia	Feb 20 –23, 2020
Australasian Bone and Joint Infection Conference	Newcastle, Australia	Mar 6–7, 2020
3rd UAE International Conference on Antimicrobial Resistance	Dubai, UAE	Mar 19–20, 2020
Global Solutions to Antibiotic Resistance in Healthcare 2020	Atlanta, USA	Mar 26–30, 2020
6th International Conference on Healthcare Associated Infections	Atlanta, USA	Mar 26–30, 2020
Australasian Society for Infectious Diseases Annual Scientific Meeting 2020	Melbourne, Australia	June 03–05, 2020
International Symposium on Staphylococci and Staphylococcal Infections (ISSSI) 2020	Perth, Australia	Aug 23 –26, 2020
The 18th Asia Pacific Congress of Clinical Microbiology and Infection (APCCMI)	Suntec, Singapore	Nov 05–07, 2020

TITLE	VENUE	SCHEDULE
4th International Conference on Diabetes and its Complications 2020	Osaka, Japan	Feb 17-18, 2020
3rd International conference on Diabetes, Hypertension and Metabolic Syndrome	Tokyo , Japan	Feb 24–25, 2020
3rd International conference on Diabetes, Hypertension and Metabolic Syndrome	Tokyo , Japan	Feb 24–25, 2020
25th International Conference on Diabetes, Endocrinology and Healthcare	Osaka, Japan	Mar 23–24, 2020
World No Diabetes & Obesity Congress 2020	London, UK	Mar 23–24, 2020
29th World Diabetes & Heart Congress	Tokyo, Japan	Mar 25–26, 2020
International Conference on Diabetes and Heart diseases	Hong Kong	Mar 30–31, 2020
World congress on Endocrinology and Metabolic syndrome	Auckland, New Zealand	Apr 13–14, 2020
14 th European Diabetes and Endocrinology Congress	London, UK	Apr 15-16, 2020
3rd Global Diabetes Summit	Kuala Lumpur, Malaysia	Apr 17–18, 2020
19 th International Conference on Diabetes, Endocrinology and Obesity	Florence, Italy	Apr 20–21, 2020
4th Global Summit on Diabetes and Endocrinology	Manchester, UK	May 14–15, 2020
30th Annual European Pharma Congress	Berlin, Germany	May 18–19, 2020
World Summit on Interventional Therapies for Diabetes and Multidisciplinary Medicine	Bangkok, Thailand	Jun 08–09, 2020
29 th European Diabetes Congress	Barcelona, Spain	Jun 15–16, 2020
2nd World Conference On Diabetes and Endocrinology. (Diabetes 2020)	Berlin, Germany	Jun 18 – 19, 2020
26th International Conference on Human Metabolic Health- Diabetes, Obesity & Endocrinology 2020	Dubai, UAE	Jun 22-23, 2020
Annual Congress on Diabetes, Metabolism and Obesity	Sydney, Australia	Jul 06–07, 2020
18th Global Conference on Diabetes, Insulin Resistance and Primary Healthcare	Geneva, Switzerland	July 09, 2020
28 th International Diabetes and Healthcare Conference	Helsinki, Finland	Jul 15–16,2020
16th World Congress on Endocrinology & Diabetes	Copenhagen, Denmark	Aug 17–18, 2020
Global Summit on Diabetes & Endocrinology	Kyoto, Japan	Aug 24–25, 2020
2nd Asia Pacific Endocrinology Congress	Singapore	Sept 22–23, 2020
31st International Congress on Prevention of Diabetes and Complications	Rome, Italy	Sept 23–24, 2020
25th International Conference on Dentistry and Dental Materials	Vienna, Austria	Oct 05–06, 2020
2nd Global Congress on Endocrinology and Gynaecology	Sydney, Australia	Oct 12–13, 2020
World Congress on Endocrinology & Diabetes	Rome, Italy	Oct 14–15, 2020
International Congress and Expo on Diabetic Care 2020	Bangkok, Thailand	Nov 09-10, 2020
International Conference on Diabetes and Diabetic Nurse Education and Practice	Madrid, Spain	Nov 16–17, 2020
World congress and Expo on Diabetes	Kyoto, Japan	Nov 16–17–2020
2 nd Asia Pacific Diabetes and Endocrinology Congress	Brisbane, Australia	Nov 16–17, 2020
3rd Annual Congress on Diabetes and Its Complications	Tokyo, Japan	Dec 04–05, 2019
Annual Congress on Women's Health	Tokyo, Japan	Dec 07–08, 2020
2nd International Metabolic Diseases & Liver Cancer Conference 2020	Dubai, UAE	Dec 07-08, 2020

N.B. Dates/Venues of forthcoming conferences are subject to change/cancellation etc. with or without notice. So, intending participants are advised to check all details relating to VISA and other relevant matters before departure.



Eminence Business Media Organizes 2nd Edition Remarkable Women Camaraderie 2019

Eminence Business Media supports and work every day for empowering women and to create a platform for working women to network and grow, they organized the 2nd Edition of its non-profitable "Remarkable Women Camaraderie 2019" on 29th November, 2019 at The Park Hotel, New Delhi.

The event was an outstanding success with a great lineup of leading eminent women leaders and men who believe in this cause from Pharma, FMCG, Nutraceuticals, Cosmetology, Healthcare, IT, Media & Government.

The event ensured continuous engagement of the audience & speakers through various discussions with regards to the women empowerment, changing the social environment about women in leadership role, leadership techniques, women safety & cyber security, strengthening the advocacy skills, maintaining work life balance, knowing the legal rights and gender diversity in corporate sectors. It also spoke about menstrual hygiene and mental health issues in working women.

The day was inaugurated by light-

ing the ceremonial lamp by Speaker & Guest of Honour Mr. Vinit Goenka- Member of the Governing Council (CRIS), Ministry of Railways, Ms. Guneet Kaur Hayer- MD Eminence Business Media, Mrs. Aparna Surabhi- CFO & CHRO Caliber Technologies, Mrs. Dipali Mathur Dayal- CEO & Co-Founder, Naturrel & Kool Pvt. Ltd, Ms. Balwinder Kaur- Pharma Consultant & Trainer, Mr. Sudeep Majumdar- Sr. Director HR & Head L&OD, Biocon.

The event Chairperson, Ms. Guneet Kaur Hayer, kickstarted the day with her opening remarks in presence of various eminent women leaders, speakers and over 100 delegates from different industry verticals.

Mr. Vinit Goenka, shared his views on Women Empowerment & the initiatives by the government.

Eminence Business Media also created platform for women NGO's like Myna Foundation and Karma - Our Destiny to share information about their work and contribution. The event also witnessed other interactive sessions with very empowering and knowledgeable speakers.



Eminence Business Media's "2nd Annual Pharma Manufacturing and Automation Convention 2019" – a huge success

Eminence Business Media's "2nd Annual Pharma Manufacturing & Automation Convention 2019" concluded on October 17th & 18th, 2019 at Hotel Radisson Blu Plaza Banjara Hills, Hyderabad. The theme of the summit was "From Ideation to Innovation: Aligning with trending market demands". The event was an outstanding success with 150+ delegates attending the conference with **Honeywell, Zenith Technologies, Caliber Group, UL & Pharma Mantra** partnering the event.

The two-day event ensured the continuous engagement of the audience, speakers and exhibitors through networking activities and discussions with regards to the ever-evolving challenges of the pharmaceutical companies with regards to manufacturing & automation and how to overcome those challenges.

The event was inaugurated with the opening remarks by the chairperson Mr. K. Kulbhushan- Vice President & Global Head Operations Strategy, Dr. Reddy's in the presence of various eminent personalities from the Pharma Industry. The opening re-

marks were followed by the opening ice breaker session which included a group discussion on Indian Pharma Today.

Day one also witnessed a panel discussion on "Pharma 4.0 & Data Integrity: Implementing new systems with current processes".

The sessions on day two included: cGMP Compliance: Approaches for Automation Adherence by Mr. Kalpesh Vaghela, Infra Control Systems; Lean Deployment – How does it improve the quality & productivity by Mr. Srinivasa Rao Sambangi, Aurobindo; Mr. Sekhar Surabhi, Caliber Group; Mr. Prashant Sharma, Zydus Cadila; Are emerging technologies paradigm shift in the pharmaceutical industry by Dr. Ranjit Barshikar, Qbd International; Packaging a boon to product lifecycle by Mr. Prasad Satam, Aurobindo & Implementation of PAT: Challenges & Need in future by Mr. Nilesh Hastak, Sai Lifesciences.

Day two of the summit also witnessed a special networking session for the event partners where they interacted with all the delegates in the conference hall and present their solutions & services.

The event was concluded with the closing remarks by Ms. Guneet Kaur Hayer, Managing Director, Eminence Business Media followed by a group photo of the delegates & event partners of the event.



2nd Edition Africa Healthcare Extension Summit and Africa Women's Health Summit held in Nairobi

The 2nd Edition Africa Healthcare Extension Summit and Africa Women's Health Summit was launched in Nairobi, Kenya, the leading event is organized by Verve Management UAE, and will be held over two days with participation of government officials from Ministries of Health across Africa, Regulatory Bodies, Healthcare Associations, Stakeholders, Doctors, Obstetricians, Gynaecologists, Reproductive Medicine Specialists, Infertility Specialists and all other Medical Professionals.

AHES and AWHs is under the patronage of Ministries of Health Malawi, Zambia, Lesotho, Zimbabwe, Eswatini and being supported by Africa Healthcare Federation, Kenya Healthcare Federation and many more!

Key topics were discussed by industry professionals during the AHES

sessions which included Role of Innovation in Augmenting Healthcare, Healthcare Financing Systems in Africa, Alternative Forms of Healthcare Partnerships, Medical Devices Management Policy, Innovations & Changes in Cancer Therapy and Improving patient safety & quality in healthcare.

AWHS topics includes Interventions in Obesity Management for Women, Current trends in the treatment of Polycystic Ovary Syndrome, Understanding Endometriosis, Stem cells and other cell-based therapies. AWHs 2019 Eminent Speakers included: Dr. Maureen Owiti (Kenyatta National Hospital), Dr. Navin Chander Raina (M.P. Shah Hospital), Dr. Elizabeth Gitau (Kenya Medical Association), Dr. Elizabeth Nakiyingi (Women's Hospital International and Fertility Centre) and many more!

IDF EVENTS – You can't afford to miss!

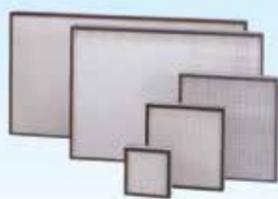
Event	Venue	Date
13th International Conference on Advanced Technologies & Treatments for Diabetes	Madrid, Spain	Feb 19–22, 2020
18th Malvern Diabetic Foot Conference	Worcestershire, UK	May 13–15, 2020
IDF Diabetes Complications Congress 2020	Lisbon, Portugal	July 02–04, 2020

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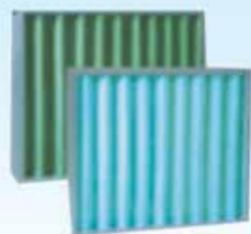
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Factory:

Master Para, Uttarkhan, Dhaka-1230, Bangladesh.

APPOINTMENTS & PROMOTIONS



Mohammad Atiquzzaman has been promoted as General Manager, Marketing of Square Pharmaceuticals Ltd. Prior to this, he was working as Deputy General Manager, Marketing in the same organization. He started his career at Square Pharma in 1999 as an Executive and is serving the organization successfully till today. He had completed his B. Pharm and M. Pharm from University of Dhaka. He also obtained MBA from East West University.



Fazlul Amin Talukder has been promoted as General Manager, Supply Chain Management (SCM) of Square Pharmaceuticals Ltd. Prior to this, he was working as Deputy General Manager, SCM in the same organization. He started his career at Square Pharma in 1998 as an Executive in PMD and worked successfully in different departments of the same organization. He had completed his B. Pharm and M. Pharm from University of Dhaka. He also obtained MBA from East West University.



Ali Muntaseer has been promoted as Senior Manager, Product Management Department (PMD) of Square Pharmaceuticals Ltd. He started his career at Square Pharma in 2001 as an Executive and is working in the same organization successfully till today. He had completed his B. Pharm and M. Pharm from University of Dhaka. He also obtained MBA from East West University.



Imran Hassan has been promoted as Senior Manager, Product Management Department (PMD) of Square Pharmaceuticals Ltd. Prior to this, he was working as Group Product Manager, PMD in the same organization. He started his career at Square Pharma in 2002 as an Executive and is working successfully in the same organization till today. He had completed his B. Pharm and M. Pharm from University of Dhaka. He also obtained MBA from South East University.



AHM Rashidul Bari has been promoted as Senior Manager, Product Management Department (PMD) of Square Pharmaceuticals Ltd. Prior to this, he was working as Group Product Manager, PMD in the same organization. He started his career at Square Pharma in 2004 as an Executive and has been working till today. He had completed his B. Pharm and M. Pharm from University of Dhaka. He also obtained MBA from East West University.

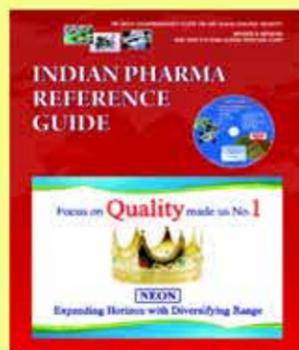
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Event	Venue	Date
Arab Health 2020	Dubai, UAE	Jan 27-30, 2020
IMTS Dubai 2020	Dubai, UAE	Feb 02-02, 2020
Medlab Middle East 2020	Dubai, UAE	Feb 03-06, 2020
DUPHAT 2020	Dubai, UAE	Feb 25-27, 2020
Medical Japan 2020	Osaka, Japan	Feb 26-28, 2020
Asia Pharma Expo 2020	Dhaka, Bangladesh	Feb 28-Mar 01, 2020
CPhI South East Asia	Bangkok, Thailand	Mar 04-06, 2020
Pharma & Lab Expo 2020	Mumbai, India	Mar 04-06, 2020
Medical Fair India 2020	Mumbai, India	Mar 05-07, 2020
CPhI Japan 2020	Koto, Japan	Mar 16-18, 2020
Phar-East 2020	Singapore	Mar 18-19, 2020
Korea International Medical & Hospital Equipment Show	Seoul, South Korea	Mar 19-22, 2020
Saudi Healthcare Exhibition	Riyadh, Saudi Arabia	Mar 22-24, 2020
Phar-East 2020	Singapore	Mar 31-Apr. 1, 2020
Med Expo 2020	Bishkek, Kyrgyz Republic	Apr 01-03, 2020
EgyMedica	Cairo, Egypt	Apr 02-04, 2020
Eastern Medical Healthcare	Kolkata, India	Apr 03-05, 2020
North Africa Health 2020	Cairo, Egypt	Apr 07-09, 2020
Turkey Healthcare 2020	Istanbul, Turkey	Apr 08-09, 2020
World Pharma Expo 2020	Bangkok, Thailand	Apr 09-10, 2020
KOREA LAB 2020	Kintex, South Korea	Apr 14-17, 2020
South East Asian Healthcare & Pharma Show 2020	Kuala Lumpur, Malaysia	Apr 20-23, 2020
TIHE 2020	Tashkent, Uzbekistan	Apr 21-23, 2020
INTERPHEX 2020	New York, USA	Apr 28-30, 2020
Hong Kong International Medical & Healthcare Fair	Hong Kong	May 04-06, 2020
Vietnam Medi-Pharm 2020	Hanoi, Vietnam	May 06-09, 2020
Africa Health	Johannesburg, S. Africa	May 12-14, 2020
Hospitalar	São Paulo, Brazil	May 19-22, 2020
Syrian Medicare 2020	Damascus, Syria	June 03-06, 2020
CPhI China 2020	Shanghai, China	June 22-24, 2020
Medical Expo 2020	Casablanca, Morocco	June 25-28, 2020
Int'l Conf. on Medical, Biological and Pharmaceutical Sciences 2020	Dhaka, Bangladesh	July 01-02, 2020
Medical Device Regulations in the M-East and N. Africa 2020	London, UK	July 01-02, 2020
Indian Pharma Expo 2020	New Delhi, India	July 02-04, 2020
Medicall Chennai 2020	Chennai, India	July 24-26, 2020

N.B. Dates/Venues of forthcoming events are subject to change/cancellation etc. with or without notice. So, intending participants are advised to check all details relating to VISA and other relevant matters before departure.

FAST FACTS

➤ Pneumonia claimed the lives of more than 800,000 children globally under the age of five last year, or one child every 39 seconds, according to a new analysis.

➤ In Bangladesh, pneumonia claimed the lives of more than 12,000 children under five, which is more than 1 child every hour. 13 percent of child deaths were due to pneumonia in 2018.

➤ Around US\$4.0 billion flies out of the country as medical expenses annually.

➤ The number of Bangladeshis going to India with M (medical) visas soared to more than 221,000 in 2017.

➤ Some 30 percent cancer patients could get better if the disease is detected early. But in reality, 80 percent of cancer patients come for treatment at advanced stage.

➤ Seven in every 10 people are dying due to non-communicable diseases.

➤ 5,72,6002 people died in the country in 2016 due to non-communicable diseases, accounting for 67 per cent of the total deaths. Of them, 30 per cent people died due to cardiovascular ailments, 12 per cent from cancer, 10 per cent from chronic respiratory diseases, three per cent from Diabetes and 12 percent from other NCDs disease.

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