Fourth Annual World Health Continuing Medical Education Conference

Health Disparities Impacting Global and Local Caribbean Populations

Virtual Conference

June 3–5, 2021

Provided by Healthfirst, Howard University College of Medicine, and MediNova
PROGRAM OVERVIEW

This Continuing Medical Education activity is designed to update primary care and specialty practices on the evolving strategies for implementing evidence-based medicine to meet the needs of local, regional, and global communities. The intent is to inform the attendees on innovations in treating special patient populations, with a focus on Caribbean communities. Using evidence-based prevention, chronic-disease management, pharmacotherapy, and cutting-edge treatment options, participants will be able to integrate approaches to improve patient care outcomes.

PROGRAM OBJECTIVES

At the conclusion of this activity, participants will be cognizant of:

- **Objective 1**
  New models of healthcare delivery system reform and how they can be employed

- **Objective 2**
  Current solutions to address healthcare fragmentation and health outcomes

- **Objective 3**
  Using data to define standards of care

- **Objective 4**
  Using quality measures to define value

- **Objective 5**
  Addressing health disparities of Caribbean populations both locally and abroad

TARGET AUDIENCE

Medical directors, physicians, physician assistants, nurse practitioners, nurses, health professionals, and practice leaders that serve high-risk populations.

SPONSOR ACCREDITATION

Howard University College of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CREDITS

Howard University College of Medicine Office of Continuing Medical Education designates this educational activity for a maximum of 10.25 AMA PRA Category 1 Credits™. Physicians should claim only credit commensurate with the extent of their participation in the activity.
CME CERTIFICATION
Howard University College of Medicine is in full compliance with provisions of the Americans with Disabilities Act (ADA) and is accessible to individuals with special needs. If you would like to attend this conference and require any special needs or accommodations, please contact Elizabeth Jean-Jacques, Healthfirst, at ejean-jacques@healthfirst.org or call 1-212-497-4382.

Day 1 | Thursday June 3, 2021 - 4.0 Credits
Day 2 | Friday June 4, 2021 - 4.25 Credits
Day 3 | Saturday June 5, 2021 - 2.0 Credits

REGISTRATION
If you need additional information or to register for the conference, please email Elizabeth Jean-Jacques, Healthfirst, at ejean-jacques@healthfirst.org or call 1-212-497-4382.

FACULTY DISCLOSURE
It is the policy of Howard University College of Medicine to ensure objectivity, balance, independence, transparency, and scientific rigor in all CME-sponsored educational activities. All faculty participating in the planning or implementation of a sponsored activity are expected to disclose to the audience any relevant financial relationships and to assist in resolving any conflict of interest that may arise from the relationship. Presenters must also make a meaningful disclosure to the audience of their discussions of unlabeled or unapproved drugs or devices. This information will be available as part of the course materials.

SPECIAL NEEDS
Howard University College of Medicine is in full compliance with provisions of the Americans with Disabilities Act (ADA) and is accessible to individuals with special needs. If you would like to attend this conference and require any special needs or accommodations, please contact Chance Manley, Howard University Hospital, at 1-202-865-6696.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Lecturer</th>
</tr>
</thead>
</table>
| 8:30am–8:45am| **Welcome and Introduction**                                             | Shelly McDonald-Pinkett, M.D., F.A.C.P., C.P.H.Q.  
<pre><code>            |                                                                          | *Chief Medical Officer, Howard University Hospital*                                      |
</code></pre>
<p>|              |                                                                          | Roxanne Smith-White, M.D., F.A.C.P.                                                          |<br />
|                                                                          | <em>Chief Executive Officer, Lemurian Healthcare PC</em>                                       |
|              |                                                                          | Henry R. Paul, M.D.                                                                          |<br />
|                                                                          | <em>President, MediNova</em>                                                                     |
|              |                                                                          | Susan J. Beane, M.D.                                                                          |<br />
|                                                                          | <em>Executive Medical Director, Healthfirst</em>                                                 |
| 8:45am–9:45am| <strong>Lectures</strong>                                                             | Health Disparities - The Bahamian Experience                                                 |<br />
|                                                                          | The Hon. Duane E. Sands, M.D.                                                            |<br />
|                                                                          | <em>Government of the Bahamas</em>                                                              |
|              |                                                                          | Women’s Health: Disparities in the Caribbean Population                                    |<br />
|                                                                          | Locally and Globally                                                                     |<br />
|                                                                          | Ambereen Sleemi, M.D., M.P.H.                                                            |<br />
|                                                                          | <em>Urogynecologist, Fistula Surgeon, Executive Director, International Medical Response</em>   |
| 9:45am–10:15am| <strong>Question and Answer Session</strong>                                          |                                                                                              |<br />
| 10:15am–10:45am| <strong>Lectures</strong>                                                             | State of the Art: Hand-held Ultrasound and Teleradiology                                    |<br />
|                                                                          | Implementing Point of Care Ultrasound in an Austere Setting                             |<br />
|                                                                          | Berndt P. Schmit, M.D., M.B.O.E.                                                        |<br />
|                                                                          | <em>Associate Professor, Radiology, The University of Arizona Health Sciences</em>           |<br />
|                                                                          | <em>Founder, Humanitarian Radiology Development Corps, USA</em>                               |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45am–11:00am</td>
<td>Question and Answer Session</td>
<td></td>
</tr>
</tbody>
</table>
| 11:00am–12:00pm | Changing Paradigms of Pulmonary Tuberculosis: A Radiologist’s Perspective | Michelle L. Hershman, M.D.  
Cardiothoracic Radiologist, Hospital of the University of Pennsylvania |
| 12:00pm–12:15pm | Break: 15 Minutes                                                        |                                                                                     |
| 12:15pm–1:15pm | Use of System-Level Improvements for Diabetes Management                 | Gail Nunlee-Bland, M.D., F.A.C.E., F.A.A.P.  
Professor, Pediatrics and Medicine, Howard University Hospital |
|              | Reducing the Burden of Prostate Cancer in The Bahamas                    | Robin Roberts, M.D.  
Director & Senior Lecturer, UWI School of Clinical Medicine and Research, The Bahamas |
| 1:15pm–1:45pm | Question and Answer Session                                              |                                                                                     |
|              | Dismiss Session                                                          |                                                                                     |
# Agenda

**Day 2**

**June 4, 2021**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30am–8:45am</td>
<td>Welcome and Introduction</td>
</tr>
<tr>
<td></td>
<td>Shelly McDonald-Pinkett, M.D., F.A.C.P., C.P.H.Q.</td>
</tr>
<tr>
<td></td>
<td><em>Chief Medical Officer, Howard University Hospital</em></td>
</tr>
<tr>
<td></td>
<td>Roxanne Smith-White, M.D., F.A.C.P.</td>
</tr>
<tr>
<td></td>
<td><em>Chief Executive Officer, Lemurian Healthcare PC</em></td>
</tr>
<tr>
<td></td>
<td>Henry R. Paul, M.D.</td>
</tr>
<tr>
<td></td>
<td><em>President, MediNova</em></td>
</tr>
<tr>
<td></td>
<td>Susan J. Beane, M.D.</td>
</tr>
<tr>
<td></td>
<td><em>Executive Medical Director, Healthfirst</em></td>
</tr>
</tbody>
</table>

## Lectures

<table>
<thead>
<tr>
<th>Time</th>
<th>Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45am–10:15am</td>
<td>Unraveling the Ancestral Fabric: Exploring the Role of Epigenetics in Type 2 Diabetes Health Disparities</td>
</tr>
<tr>
<td></td>
<td>Maurice B. Fluitt, Ph.D.</td>
</tr>
<tr>
<td></td>
<td><em>Assistant Professor, Division of Endocrinology and Metabolism, Department of Medicine, Howard University</em></td>
</tr>
<tr>
<td></td>
<td>Metabolic Abnormalities in ESRD that Explain CV Risk</td>
</tr>
<tr>
<td></td>
<td><em>Professor of Medicine, Downstate Health Sciences University, Brooklyn, New York</em></td>
</tr>
<tr>
<td></td>
<td>Improving Colon Health at Home and Abroad</td>
</tr>
<tr>
<td></td>
<td>Adeyinka O. Laiyemo, M.D., M.P.H., F.A.C.G., A.G.A.F.</td>
</tr>
<tr>
<td></td>
<td><em>Associate Professor of Medicine, Howard University Hospital</em></td>
</tr>
</tbody>
</table>

| 10:15am–11:00am | Question and Answer Session     |

<p>| 11:00am–11:30am | Emergency Radiology Cases              |
|                 | Berndt P. Schmit, M.D., M.B.O.E.       |
|                 | <em>Associate Professor, Radiology, The University of Arizona Health Sciences Founder, Humanitarian Radiology Development Corps, USA</em> |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30am–11:45am</td>
<td>Question and Answer Session</td>
</tr>
<tr>
<td>11:45am–12:00pm</td>
<td>Break: 15 Minutes</td>
</tr>
</tbody>
</table>
| 12:00pm–1:00pm | Ethnic Concordance Between the Physician and the Patient and What it Means for the Future of Healthcare Disparities  
Errol L. Pierre, M.P.A.  
*Senior Vice President, State Programs, Healthfirst*  
NHI Bahamas: Transforming Primary Healthcare in The Bahamas on its Journey to Universal Health Coverage  
Monique Thompson, N.M.D., C.P.H.Q., BSc  
*Manager, Healthcare Quality and Wellness Development, National Health Insurance Authority* |
<p>| 1:00pm–1:30pm  | Question and Answer Session                                              |
|               | Dismiss Session                                                          |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30am–8:45am</td>
<td>Welcome and Introduction</td>
</tr>
<tr>
<td></td>
<td>Shelly McDonald-Pinkett, M.D., F.A.C.P., C.P.H.Q.</td>
</tr>
<tr>
<td></td>
<td><em>Chief Medical Officer, Howard University Hospital</em></td>
</tr>
<tr>
<td></td>
<td>Roxanne Smith-White, M.D., F.A.C.P.</td>
</tr>
<tr>
<td></td>
<td><em>Chief Executive Officer, Lemurian Healthcare PC</em></td>
</tr>
<tr>
<td></td>
<td>Henry R. Paul, M.D.</td>
</tr>
<tr>
<td></td>
<td><em>President, MediNova</em></td>
</tr>
<tr>
<td></td>
<td>Susan J. Beane, M.D.</td>
</tr>
<tr>
<td></td>
<td><em>Executive Medical Director, Healthfirst</em></td>
</tr>
<tr>
<td>8:45am–9:45am</td>
<td>Lectures</td>
</tr>
<tr>
<td></td>
<td>Cross Cultural Issues in Behavioral Health Disorders in the Caribbean Population</td>
</tr>
<tr>
<td></td>
<td>Georges J. Casimir, M.D.</td>
</tr>
<tr>
<td></td>
<td><em>Clinical Assistant Professor, SUNY Downstate Health Sciences University</em></td>
</tr>
<tr>
<td></td>
<td>COVID-19 Vaccine Trial at Howard</td>
</tr>
<tr>
<td></td>
<td>Siham M. Mahgoub, M.D.</td>
</tr>
<tr>
<td></td>
<td>*Assistant Professor of Medicine, College of Medicine, Howard University</td>
</tr>
<tr>
<td>9:45am–10:00am</td>
<td>Question and Answer Session</td>
</tr>
<tr>
<td>10:00am–10:15am</td>
<td>Break: 15 Minutes</td>
</tr>
<tr>
<td>10:15am–10:45am</td>
<td>New Lung Cancer Screening/New Guidelines</td>
</tr>
<tr>
<td></td>
<td>Amos Charles, M.D.</td>
</tr>
<tr>
<td></td>
<td><em>Clinical Associate Professor of Medicine, Warren Alpert</em></td>
</tr>
<tr>
<td></td>
<td><em>School of Medicine, Brown University</em></td>
</tr>
<tr>
<td>10:45am–11:00am</td>
<td>Question and Answer Session</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Closing Remarks/Adjourn</td>
</tr>
<tr>
<td></td>
<td>Henry R. Paul, M.D., President, MediNova</td>
</tr>
</tbody>
</table>
Cardiothoracic and Vascular Surgeon

Duane Sands, MD, former Minister of Health (Bahamas), is a cardiothoracic and vascular surgeon. Dr. Sands obtained his Doctor of Medicine degree from Johns Hopkins University School of Medicine in Maryland, and completed his residency in General Surgery and Cardiothoracic and Vascular Surgery at Wayne State University in Michigan.

Dr. Sands served as a consultant physician at the Princess Margaret Hospital (PMH) before serving as Director of Accident and Emergency, and then as the Hospital’s Chief of Surgery. He also practices at Doctors Hospital and the Cardiothoracic and Vascular Institute of the Bahamas Ltd.

Duane served as Chairman of The Bahamas Mortgage Corporation between 2011 and 2012 and is a former Chairman of the Bahamas Medical Council and Director of the Central Bank of the Bahamas. He previously served as Director of the Public Hospitals Authority, Vice President of Medical Affairs, and Member of the Board of Directors of Doctors Hospital and Director of Physicians Alliance Ltd.
Ambereen Sleemi, M.D., M.P.H.

**Urogynecologist, Fistula Surgeon, Executive Director, International Medical Response**

Ambereen is a female pelvic medicine reconstructive surgeon (urogynecologist) and trained obstetric fistula surgeon. She has served as an obstetric fistula surgeon for the Eritrean Women’s Project in Mendefera, Eritrea, since 2007, and as a surgical team co-leader for Medicine In Action’s spring trip to Kingston, Jamaica, as well as on the medical board. She spent six years on the executive committee of the International Society for Obstetric Fistula Surgeons (ISOFS) and is still an active member. In January 2013, she developed the Haitian Women’s Heath Collaborative in partnership with the Department of Ob/Gyn at the National Hospital in Port-au-Prince, Haiti. This project has expanded to a partnership with St. Boniface Hospital in the southern part of the country, continuing our pledge to increase safe surgical capacity in Haiti.

She holds an MD/MPH from George Washington University School of Medicine and is currently pursuing her M.S. in Epidemiology at Columbia University’s Mailman School of Public Health. She trained in Ob/Gyn at Louisiana State University in New Orleans, LA, in Female Pelvic Medicine and Reconstructive Surgery at Maimonides Medical Center, and in obstetric fistula surgery in northern Nigeria.
Berndt Schmit, MD, MBOE, is a Clinical Associate Professor in the Department of Medical Imaging. Originally a faculty member in the Cardiothoracic Division, Dr. Schmit was promoted to Service Chief of Emergency Radiology and tasked with creating the Medical Imaging’s Emergency Radiology Section in 2019.

Dr. Schmit has been a practicing radiologist for more than 20 years. He received his medical degree from Tufts University School of Medicine in 1991, and then trained for two years in the Emergency Medicine residency program at the University of Arizona. He then completed his diagnostic radiology residency at Mount Auburn Hospital in Cambridge, Massachusetts, followed by his Fellowship in Musculoskeletal Imaging at the Brigham and Women’s Hospital in Boston in 1998. Dr. Schmit co-authored the textbook Bone and Soft Tissue Tumors; a Multidisciplinary Review with Case Presentations, published in 2014.

Dr. Schmit believes in cultures that create engagement and empowerment, and thus pursued the unique business degree at Ohio State University which focuses on the principles of Lean Management in the Healthcare setting. He earned his Master of Business Operational Excellence degree in 2014. Dr. Schmit is a consultant with Radiology Business Solutions, which works with radiology private practices across the country. Dr. Schmit loves to teach and has been honored with teaching awards from medical students and radiology residents.

Dr. Schmit has a lifelong commitment to global health development. He first became involved in international charitable medicine as a third-year medical student when he worked for a summer in a public hospital in rural Guatemala. After several years of leadership experience in a radiology non-profit organization, Dr. Schmit founded Humanitarian Radiology Development Corporation (HRD Corps) in 2017.

Dr. Schmit is an invited lecturer on global health and radiology capacity development. In 2018, Dr. Schmit created a Global Health Radiology curriculum for the University of Arizona Radiology Residency Program.
Dr. Michelle Hershman is a cardiothoracic radiologist at the Hospital of the University of Pennsylvania. Originally from Miami, FL, she graduated from Jefferson Medical College in Philadelphia, PA, and completed an internship at Yale University Medical Center. She did her radiology residency at the University of Arizona Medical Center, followed by a cardiothoracic radiology fellowship at the Hospital of the University of Pennsylvania. She is a member of a 501c3 nonprofit organization called Humanitarian Radiology Development Corps (HRD Corps), which aims to increase radiology capacity in low- and middle-income countries.
Dr. Gail Nunlee-Bland is the Chief of Endocrinology and Director of the Diabetes Treatment Center at Howard University Hospital. She is a Professor of Pediatrics and Medicine. Dr. Nunlee-Bland is a graduate of Howard University College of Medicine, Class of 1980. She completed her internship and residency in pediatrics at Howard University Hospital and her pediatric endocrine fellowship at Johns Hopkins Hospital.

Dr. Nunlee-Bland has professional memberships in the American Diabetes Association, Lawson Wilkins Pediatric Endocrine Society, Endocrine Society and American Association of Clinical Endocrinologists. She has served on several advisory committees and has presented at national and local scientific meetings on diabetes and obesity. She has numerous publications related to diabetes in the African-American population and is currently conducting research in the areas of diabetes and obesity.

Dr. Nunlee-Bland is passionate about improving access to quality diabetes care. This passion has translated into the American Diabetes Association recognized Diabetes Treatment Center. The Diabetes Treatment Center is a resource for patients and practitioners to have access to the expertise of nutritionists, diabetes educators, podiatrists, and diabetes specialists. Dr. Bland is the principal investigator for the W.E.I.G.H.T. project, which is funded by NIMHD under the DC-Baltimore Research Center on Child Health Disparities.
Director & Senior Lecturer, UWI School of Clinical Medicine and Research, The Bahamas

Over the past 25 years, I have delivered urological care to the peoples of The Bahamas, a population of 400,000, of which 85% are of African ancestry. As the first urologist in the Government health care service, I introduced and advanced the practice of urology with a major focus on male health and in particular prostate cancer. With my initial experience of discovering that more than 80% of our males present with advanced and metastatic prostate cancer on initial presentation, I initiated an annual island-wide prostate cancer screening program, on a volunteer basis, with the Cancer Society of The Bahamas. The screening clinics span 15 years on the main island, New Providence, and seven years on the island of Grand Bahama, documenting 7,268 clinic visits in 2,846 men and 4,063 visits in 1,940 men, respectively. In my quest to empower men to take charge of their prostate health, I have delivered over 200 public lectures, appeared on over 50 radio programs, published 10 pamphlets and booklets for the Cancer Society on prostate cancer, and produced three TV documentaries on prostate cancer (30 min. each). Being able to recruit men for the proposed study is without question. More than 30% of my 130 urological presentations at national, regional, and international academic conferences have been on prostate cancer. For my contributions in health care and in particular male health, the Government of The Bahamas has recognized me for National Honors at The Queen’s Diamond Jubilee Birthday Honors for June 2012 and awarded an Order of the British Empire in 2017.

It is of note that my interest and initiatives in prostate cancer are in addition to the realities of being (1) a general urologist delivering the full spectrum of pediatric and adult urology for both males and females in both a private and public medical practice; (2) prior Chief of Department of Surgery with over 60 physicians at the 450-bed Princess Margaret Hospital; (3) currently a Director of the University of the West Indies Faculty of Medical Sciences in The Bahamas, with the responsibility of managing 80 undergraduate medical students in the final two years of their degree program and 80 postgraduate medical students in their residency training program. These added responsibilities limit my ability to publish regularly and be more involved in prostate cancer research on Bahamian males. All my research has been my personal efforts without the benefits of any research assistant or funding – this grant will provide a formal research assistant for the first time and will go a long way to advancing care and research in prostate cancer in The Bahamas as well as allot the time for publications. I will be most remiss in not adding that I am the President and a Managing Director of a physician-owned company engaged in a Public-Private Partnership with the Bahamas government that generates revenues in excess of two million dollars annually; my abilities to be fiscally and academically accountable are not in question.
Maurice B. Fluitt, PhD, is an Assistant Professor at the Howard University College of Medicine in the Division of Endocrinology and Metabolism and a research collaborator of the Immunoregulation section.

He earned his Bachelor of Science degree in Biology and Allied Health from Chowan University (2009) (Murfreesboro, NC) and his PhD in Genetics and Human Genetics from Howard University (2016). After completing his doctoral studies, he was awarded the highly competitive NIH-TL1 post-doctoral fellowship through the Georgetown Howard Universities Center for Clinical and Translational Sciences to investigate the role of microRNAs in diabetic nephropathy at Georgetown University Medical Center. He was later awarded post-doctoral fellowship from the American Diabetes Association to continue his post-doctoral studies at Georgetown University to investigate the role of microRNAs in diabetic nephropathy.

His current research aims to investigate the role of non-coding RNAs as early markers, mediators, and therapeutic interventions for type 2 diabetes mellitus and its cardio-renal complications. This work promises to provide necessary insight into the molecular complexity of this disease.
Dr. Clinton D. Brown is the former Director of the Brooklyn Health Disparities Center, and the Contact PI on that Center’s first federally funded P20 grant. Dr. Brown is currently Chair of the Institutional Review Board at SUNY Downstate, was previously the Presiding Officer for the Executive Committee (College of Medicine), and is Deputy Chief, Renal Division, Department of Medicine, and Professor of Medicine at Downstate. He received his B.S. degree from Queens College and degree in medicine from Tufts University School of Medicine. His training is in nephrology and clinical lipidology. He is a fellow in The American Society of Nephrology, The American Heart Association, and The National Lipid Association. He has authored more than 100 articles, book chapters, and abstracts. His research interest is atherosclerosis.

For more than thirty years Dr. Brown has trained and mentored students from SUNY Downstate Medical School, nearby high schools, and colleges, as well as students from and graduates of medical schools abroad. For his distinguished work and dedication, Dr. Brown has received awards from SUNY Downstate, the National Institutes of Health, and the Brooklyn community.
Associate Professor of Medicine, Howard University Hospital

Dr. Laiyemo is currently an Associate Professor of Medicine in Howard University College of Medicine in Washington, DC. He received his medical degree from the University of Lagos in Nigeria in 1990 and obtained a Master of Public Health (MPH) degree from Johns Hopkins School of Public Health in 2006. After completing his medical residency and clinical gastroenterology fellowship at Howard University, he underwent a four-year postdoctoral fellowship in Cancer Prevention in the Office of Preventive Oncology, National Cancer Institute, National Institutes of Health, from 2005 to 2009.

Dr. Laiyemo is a clinical and health services researcher. He is a board-certified gastroenterologist with research interest in cancer epidemiology and prevention. As a researcher, Dr. Laiyemo has been studying the risk factors that are associated with colorectal adenoma and cancer, including screening and surveillance issues. His research interests also involve evaluating factors that are associated with higher incidence and mortality from colorectal cancer among blacks as compared with other race-ethnicities in the United States and studying interventions to eliminate these disparities.
Errol L. Pierre is the Senior Vice President of State Programs at Healthfirst, Inc., the largest not-for-profit health plan in New York State serving more than 1.6 million members. He is accountable for revenue growth, profit and loss, and sales and retention for the Medicaid, Commercial, and Long-Term Care product portfolios representing in excess of $9 billion annually. Additionally, he leads the strategic and operational direction of the Healthfirst Foundation and serves as the Co-Chair for Healthfirst’s overall Diversity, Equity, and Inclusion efforts.

Prior to Healthfirst, Errol spent more than ten years at Empire BlueCross BlueShield, the largest for-profit health plan in New York State serving close to five million members. Errol started his career in healthcare in 2003 as an intern at Empire. Throughout his tenure, he held various leadership roles in Sales and Strategy, leaving the company as the Chief Operating Officer in 2019.

A Bronx, New York resident, Errol graduated from Fordham University with a bachelor’s degree in Business Administration with a concentration in Finance. He later obtained a master’s degree in Health Policy and Financial Management from New York University. He will complete his doctoral degree focused in Health Equity by June 2021. Lastly, he is an adjunct professor at New York University, teaching various courses in Healthcare and Business.

In his spare time, Errol volunteers for numerous non-profit organizations. He serves as a board member of the Arthur Ashe Institute of Urban Health and is a member of the national 100 Black Men’s Health & Wellness Committee. Lastly, he mentors both high school students and Fordham undergraduates in the Bronx. In 2020, he was acknowledged as one of the Caribbean-American “Power 100” by Carib News and was awarded for “Outstanding Community Service” by the Aesclepius Medical Society.
Manager, Healthcare Quality and Wellness Development, National Health Insurance Authority

Driven by her passion for helping others, Dr. Thompson has spent her life working and volunteering in service to others through the medical field and civil society organizations. After graduating from St. Andrews High School as a leading student, she received a full academic scholarship to Albright College and obtained her Bachelor of Science in the dual degree program PsychoBiology with Pre-Medical studies.

Dr. Thompson has spent her medical career learning life-saving therapies from some of the best and brightest minds in the alternative and traditional medical fields. After a rigorous four-year medical program, she graduated as a Naturopathic Medical Doctor in December of 2013 from Southwest College of Naturopathic Medicine in Tempe, Arizona.

As the Manager of Healthcare Quality and Wellness Development with the National Health Insurance Authority (NHIA) since June 2018, Dr. Thompson has been tasked with improving the quality of healthcare services of providers participating in the delivery of NHI Bahamas – a Universal Health Coverage program that offers Primary Healthcare Services.

Dr. Thompson is a member of the American Health Information Management Association (AHIMA), and the National Association for Healthcare Quality (NAHQ), and gained certification as a Certified Professional of Healthcare Quality. In her role at the National Health Insurance Authority, Dr. Thompson impacts various healthcare settings to enhance care delivery, optimize value, and improve outcomes. This is done by leading and coordinating activities in Patient Safety, Regulatory and Accreditation, Quality Review and Accountability, Performance and Process Improvement, Health Data Analytics and Population Health and Care Transitions.

In 2014 Dr. Thompson founded Cornerstone Healing Institute, an integrative medical practice. She has also served as an Adjunct Professor, and worked in the community to reach the underserved by acting as the Chair of the Bahamas Urban Youth Development Center, and serving on the Board of Directors for the Youth Empowerment Program. Dr. Thompson is certified in Biological Medicine, Project Management, is a Certified Intravenous Administrator, and a Drug Prevention Specialist.
Clinical Assistant Professor, 
SUNY Downstate Health Sciences University

Dr. Casimir is currently Clinical Assistant Professor of Psychiatry, and formerly the Associate Director of the Geriatric Psychiatry Division and the Geriatric Psychiatry Fellowship Training Program at SUNY Downstate Medical Center. In 2002, he was appointed Vice-President of Medical Affairs and Medical Director of Kingsbrook Jewish Medical Center, a position he held until 2004.

Dr. Casimir is a Diplomate of the American Board of Psychiatry and Neurology with added certifications in Geriatric Psychiatry, Addiction Psychiatry, and Forensic Psychiatry. He is also board certified by the American Society of Addiction Medicine and the American Society of Clinical Psychopharmacology.

Dr. Casimir has received research and training funding of more than $8 million from many national agencies, such as the National Institute of Mental Health (NIMH), the National Institute of Aging (NIA), etc. He has co-authored several book chapters and published more than fifty peer-reviewed articles. His clinical presentations and professional activities have received wide publicity in many local and national news organizations, including the New York Daily News, the New York Post, Amsterdam News, Clinical Psychiatry News, the Miami Herald, and the Boston Globe.
Assistant Professor of Medicine, College of Medicine, Howard University

Dr. Siham Mahgoub is an infectious diseases specialist attending in the Department of Medicine, Infectious Diseases Division, Howard University Hospital and Howard College of Medicine.

She is currently the Medical Director for the Center for Infectious Disease Management and Research (CIDMAR); she is the Principal Investigator on several grants: Ryan White part A, Sexually transmitted Infections grant; she was the Howard Principal investigator for the convalescent plasma previously an expanded access through Mayo Clinic, Coinvestigator for the NIH – Howard University Genetic Study and now the Principal Investigator for the Novavax vaccine trial at Howard.

Dr. Mahgoub has played and continues to play an instrumental, phenomenal role during the COVID-19 pandemic: she has been the lead physician for the COVID-19 treatment task force and contributed to the Howard University treatment guidelines.

Dr. Mahgoub has served as the Infectious Diseases /Infection Control advisor for the faculty Private Practice COVID-19 task force. She was the Infectious Diseases advisor for President Frederick’s task force for reopening Howard University.

Dr. Mahgoub was recently nominated for and awarded the 2020 Attending Leadership Award and 2021 Howard University International Women’s Day Honoree for excellence in leadership.

Dr. Mahgoub believes that the best care can be provided to patients in a multidisciplinary approach. Dr. Mahgoub’s passion is teaching the future generation of doctors and includes evidence-based medicine in her teaching. She is a great advocate for addressing disparities in health and healthcare.
Clinical Associate Professor of Medicine, Warren Alpert School of Medicine, Brown University

Dr. Charles is a Clinical Associate Professor of Medicine at the Alpert Medical School of Brown University in Providence, RI. He is a Pulmonologist/Critical Care Specialist by training. He is currently the Chief of the Hospitalist Division of the Department of Medicine at the Providence VA Medical Center (PVAMC). Dr. Charles has been at the PVAMC since 1992.

Dr. Charles earned his Bachelor of Science Degree in Biology from the City College of the City University of New York (CUNY). He received his Medical Degree from Ross University School of Medicine (Portsmouth, Dominica). After medical school, Dr. Charles worked for three years as a Pulmonary Research Associate at the Pulmonary Center, Boston University School of Medicine. He completed a Medicine Residency Training at the Robert Wood Johnson Residency Program in Neptune, New Jersey, and a Pulmonary Critical Care training at Brown University Pulmonary/Critical Care Fellowship training program in Providence, RI. He has stayed in Rhode Island and has been working at the Providence, VA since he completed his fellowship training.

Dr. Charles filled a number of roles during his tenure at the PVAMC. He has been the Medicine Clerkship site Director for the past 15 years. He previously served as the Medicine Residency Program Director for several years. For 15 years, he has been the co-leader of the Brown University Residency Global Health Exchange Program with Haiti and the Dominican Republic. Dr. Charles also participated in the Brown University Pulmonary Fellowship training in Addis Ababa, Ethiopia.

Dr. Charles has participated in several mobile clinics that he organized himself and with others providing medical care in underserved areas in Haiti and other places with limited resources.

Dr. Charles expresses joy teaching residents and medical students alike. He has received more than 50 awards/honors for his role as a Medical Educator. His hobbies include traveling and running, trail walking, hiking, and amateur photography.

Dr. Charles is a staunch patient advocate. He believes that delivery of care by healthcare providers should be unbiased and equitable.
Health Disparities – The Bahamian Experience

The Honourable Dr. Duane E.L. Sands, MD
Former Minister of Health
The Commonwealth of The Bahamas
June 3, 2021

Purpose and Objectives

**PURPOSE**
The Impact of Climate Driven Challenges on Access to a Unique Health System

**OBJECTIVES**
- All Health Systems face unique issues
- Things can always get worse than you imagined
- Preparedness and Planning for the worst mitigates health inequity

**FINANCIAL DISCLOSURE**
I have no financial disclosures.
### MY COUNTRY’S PROFILE AND FISCAL REALITY

### BASIC ECONOMIC INDICATORS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Statistics</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (000)</td>
<td>376.3</td>
<td>2017 (DoS)</td>
</tr>
<tr>
<td><strong>Main Industries</strong></td>
<td></td>
<td>2017 (CB)</td>
</tr>
<tr>
<td>1. Tourism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Financial Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP (US$)</td>
<td>9B</td>
<td>2016 (IMF)</td>
</tr>
<tr>
<td>GDP Growth Rate (%)</td>
<td>0.6</td>
<td>2016 (IMF)</td>
</tr>
<tr>
<td>Per Capita GDP (US$)</td>
<td>25.1K</td>
<td>2016 (IMF)</td>
</tr>
<tr>
<td>Unemployment Rate (%)</td>
<td>12.7</td>
<td>2016 (HIA)</td>
</tr>
<tr>
<td>Youth Unemployment (%)</td>
<td>25.8</td>
<td>2016 (DoS)</td>
</tr>
<tr>
<td><strong>Imports of Goods &amp; Services (US$)</strong></td>
<td>657 M</td>
<td>2016 (Trading Economics)</td>
</tr>
<tr>
<td><strong>Food Imports</strong></td>
<td>90</td>
<td>2016 (DoS)</td>
</tr>
<tr>
<td><strong>Poverty rate (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person living below poverty line of $4,247 per person per year</td>
<td>12.8</td>
<td>2014 (DoS)</td>
</tr>
</tbody>
</table>

**Key:**
- DoS – Department of Statistics
- CB – Central Bank of The Bahamas
- IMF – International Monetary Fund
- HIA – Health in the Americas 2012 Report
THE GOVERNMENT OF THE BAHAMAS (GOB)

- **Principal Financier**
  - National Budget allocation for health has experienced a linear increase over the past ten years
  - In 2017-2018 direct MOH allocation accounts for 11.5% of the National Budget
  - Government Health Expenditure accounts for 14.1% of the National Budget if the health insurance premium allocation for civil servants is included.

- **Principal Provider of Health Care Services**
  - Data reflect that at least 65% of the Bahamian population accesses health care services through the public health network of hospitals and community clinics.

WHERE DO THE PUBLIC HEALTH SECTOR DOLLARS GO?

- GOB Recurrent Expenditure Estimates FY 2017/2018

- UHC (NHI) $40M
- PRIMARY CARE $5M
- MOH HQ $48M
- MED/SURG SUPPL $10M
- LAB SRVCS $3M
- SEC/TERT CARE $198M
- INS. PREM. $70M
HOW ARE TOTAL HEALTH SECTOR DOLLARS SPENT?

- **Public Sector**: 46%
- **Out of Pocket**: 29%
- **Private (Insurance)**: 25%

Total Spend $800M
The USA nation spends more on health care than any other country.

**Basic Health Indicators**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Statistics</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (thousands)</td>
<td>377</td>
<td>2013</td>
</tr>
<tr>
<td>Population aged under 15 (%)</td>
<td>21</td>
<td>2013</td>
</tr>
<tr>
<td>Population aged over 60 (%)</td>
<td>12</td>
<td>2013</td>
</tr>
<tr>
<td>Median age (years)</td>
<td>32</td>
<td>2013</td>
</tr>
<tr>
<td>Population living in urban areas (%)</td>
<td>83</td>
<td>2013</td>
</tr>
<tr>
<td>Total fertility rate (per woman)</td>
<td>1.9</td>
<td>2013</td>
</tr>
<tr>
<td>Number of live births (thousands)</td>
<td>5.8</td>
<td>2013</td>
</tr>
<tr>
<td>Number of deaths (thousands)</td>
<td>2.3</td>
<td>2013</td>
</tr>
<tr>
<td>Birth registration coverage (%)</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>Cause-of-death registration coverage (%)</td>
<td>93</td>
<td>2008-2010</td>
</tr>
<tr>
<td>WHO region</td>
<td>Americas</td>
<td>2013</td>
</tr>
<tr>
<td>World Bank income classification</td>
<td>High</td>
<td>2013</td>
</tr>
</tbody>
</table>
OUR PRIORITY SETTING AND BURDEN OF DISEASE

Violence: A Public Health Challenge
Non-Communicable Diseases
Health Systems Strengthening
In light of the foregoing, The process of prioritization for this SIDS demands mental, ethical, social and fiscal gymnastics. There are the demands to answer the health challenges that are threatening to overcome us like a tsunami – Threats like obesity... or the costs associated with complications of non-communicable diseases ...

... or the threat to our economy created by travel notices related to disease outbreaks and vector-borne illnesses...

How do we prioritize the recruitment of necessary staff against the investment in reliable procurement chains for pharmaceuticals and therapeutics resulting from the high burden of disease? How do we find efficiencies that would engender confidence in the ability of the Ministry of Health to appropriately manage the health issues in the country while simultaneously requesting funding for technical assistance to develop stronger, and more resilient health systems and human resource capacities.

In brief, I will attempt to bring some perspective to what we in the Ministry of Health are considering – with the caveat that this list is not all inclusive.
Violence is the 2nd leading cause of death among males.
This contrasts with 2009 when it ranked 6th.
We are losing our citizens in what should be their most productive years.
PYLL carries significant economic implications.
A nation’s health is its wealth.
Injury and violence leads.

**PERCENT CONTRIBUTION TO TOTAL PYLL**

- Injury & Violence: 25.4%
- NCDs & Related Risk: 12%
- Cancers: 11%

**COMPARISON OF MALE & FEMALE EXTERNAL INJURIES**

YEAR OF DATA

- MALE EXT INJ
  - 2004: 84.7
  - 2005: 95.6
  - 2006: 91.1
  - 2007: 111
  - 2008: 103.2
  - 2009: 109.7
  - 2010: 108.1
  - 2011: 124

- FEMALE EXT INJ
  - 2004: 17.6
  - 2005: 32.9
  - 2006: 18.3
  - 2007: 16.9
  - 2008: 23.3
  - 2009: 22.5
  - 2010: 26.5
  - 2011: 23.5
VIOLENCE

PRIORITY #1

The Tribune

Two murders in six hours
PRINCESS MARGARET A&E VIOLENCE STATISTICS 2012-2016

![Graph showing violence statistics from 2012 to 2016, with categories for GSW, Stabs, and Assaults.]
PROFILE OF HOMICIDE VICTIMS - THE BAHAMAS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>84.2%</td>
<td>88.0%</td>
</tr>
<tr>
<td>Single</td>
<td>76.4%</td>
<td>83.0%</td>
</tr>
<tr>
<td>Under 25 years</td>
<td>43.0%</td>
<td>28.1%</td>
</tr>
<tr>
<td>Bahamian</td>
<td>82.4%</td>
<td>85.0%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>60.0%</td>
<td>46.0%</td>
</tr>
<tr>
<td>Criminal Record</td>
<td>27.4%</td>
<td>56.0%</td>
</tr>
</tbody>
</table>

Homicide victims are predominantly:
- Single
- Male
- Unemployed
- Possess a criminal record

Source: Violence in The Bahamas
AGE DISTRIBUTION OF VICTIMS – 2012-2016 (RBPF)
VICTIM PROFILE – PRODUCTIVE YEARS – 2012 – 2016 (RBPF)

- Unknown
- 66 & over
- 56-65
- 46-55
- 18-45
- 00-17

Year 2012
- 20%
- 10%
- 10%
- 3%
- 0%
- 0%

Year 2013
- 92%
- 93%
- 10%
- 5%
- 0%
- 8%

Year 2014
- 106%
- 0%
- 5%
- 0%
- 0%
- 4%

Year 2015
- 118%
- 4%
- 0%
- 0%
- 4%
- 1%

Year 2016
- 92%
- 4%
- 0%
- 0%
- 4%
- 1%

IS THERE A LINK: POVERTY, HOUSEHOLD SIZE AND VIOLENCE?

- National poverty rate 9.3% (2001) vs. 12.8% (2013)
- Poverty Line - $4,247 per person per year (2013).
The Bahamas’ poverty rate is at least 8 percentage points lower than India and Turkey. Yet, its murder rate is almost 6X higher per 100’000.

Source: World Bank
Graph: Planning Unit, MoH
VIOLENCE & OUR YOUTH (GSHS, 2013)

- Lifetime drug use: 15%
- Made a suicide plan: 16%
- Ever attempted suicide: 14%
- Ever physically attacked: 31%
- Part of a violent group: 11%
- Noted lack of parental oversight for homework: 53%

Source: The Bahamas’ GSHS, 2013

Graph: Planning Unit
PARADIGM SHIFTS IN HISTORY

- Miasma theory replaced by germ theory
- Theodor Billroth “The surgeon who would attempt to suture a wound of the heart should lose the respect of his colleagues…”
- From small, closed units to larger, more open ICUs
- Peptic ulcer disease: From “Stress” to H. Pylori.

QUESTIONS TO BE ASKED?

- Is aggression related to hormone levels in our young males?
- Is aggression stimulated by external v. organic factors? Or do organic factors precede trigger factors?
- What role do ‘spiked’ soft drinks, psycho-trophic substances, weed etc. plays?
- Alternative lifestyles?
- Male prowess?
- Maternal psycho-pathology?
- Early indicators of early aggression?
WHAT MIGHT ACCOUNT FOR DIFFERENT AGGRESSION PATTERNS AMONG MALES IN THE SAME HOUSEHOLD?

WHAT MIGHT ACCOUNT FOR DIFFERENT AGGRESSION PATTERNS AMONG MALES IN THE SAME HOUSEHOLD?

- Interventions currently in place **DO NOT** work
- Perhaps we should question what we believe to be truth... and re-examine the problem with a public-health methodology!
- PAHO’s assistance with the study proposal design

HOW DO WE ANSWER?
Over the last two decades, the Bahamian society has drifted more and more away from an agricultural one towards an industrialized, instant society.

- The ‘drug’ of choice for many is sugar, and this addiction starts early in life.
- Breastfeeding rates are low.

**Priorities #2**
HOW DOES THE BAHAMAS’ PREVALENCE OF OVERWEIGHT & OBESITY COMPARE TO CARICOM MEMBER STATES?
- 60% of adult Bahamians have 3 or more NCD risk factors
- We are more unhealthy now than 10 years ago

Source: Planning Unit, MoH
DISTRIBUTION OF IMPORTED FASTFOOD FRANCHISES, 2013

TREND FOR TOP CANCERS IN THE BAHAMAS 2004-2011 (HIRU, MOH)
MAJOR FUNDING STREAMS NEEDED

- Violence Research
- Mental Health
- Response to natural disasters and other public health emergencies
- Developmental Disability
- Pharmaceuticals and Therapeutics

HEALTH SYSTEMS STRENGTHENING

PRIORITY #3
NATIONAL FOCAL POINT (NFP) COORDINATION

International Partners

Minister of Health

Prime Minister (CABINET)

N.F.P.
M.O.H. & C.M.O’s Office

N.E.M.A.
E.O.C.

Nat. Surv. System

D.P.H.
Surveillance

Port Surveillance

M.O.H.
E.O.C.
IHR ACHIEVEMENTS TO DATE

- Revision of Public Health Rules Law (Draft)
- Membership in the International Atomic and Energy Agency (IAEA) for Radiation Emergencies
- Strategic Approach to International Chemicals Management (SAICM) grant awarded and completed to strengthen the country’s response to and ability to manage Chemical Emergencies
- Completion of Nassau Airport Development’s Communicable Disease Mitigation and Response Plan
- Cholera Response Plans for The Bahamas completed

AUTHORIZED PORTS OF ENTRY

- Nassau, New Providence (also a Designated POE)
- Freeport, Grand Bahama (also a Designated POE)
- Alice Town, Bimini
- Governors Harbour, Eleuthera
- Marsh Harbour, Abaco
- New Bight, Cat Island
ACHIEVEMENTS TO DATE (CONT’D)

- Commencement of The National Health Disaster Plan (All Hazards Plan)
- IHR webpage www.bahamas.gov.bs/health - left navigation bar
- Food Safety & Quality, Animal Health & Plant Health Acts passed in 2016
- Training of new recruits Border Control Agents (Customs and Immigration)
- Training of health staff in level one of basic epidemiology course hosted by PAHO
- Ongoing multi stakeholder trainings and cross trainings
HSS: LABORATORY ACHIEVEMENTS

- International Laboratory accreditation
- DNA PCR capability
- Expansion of testing panels to include viruses of public health importance
- Committee to design National Laboratory Strategic Plan
- Partnership with PAHO and PHA for infrastructural improvements including expansion of bench space

CHALLENGE: CROSS-CUTTING WEAKNESSES

- Legislation
- Health Planning – including Epidemiologist & Health Economist
- Human Resources for Health
- Health Financing
- Data Management & Report Writing
- Information & Communications Technology
- Established relationships and vehicles for data sharing across Government agencies
CHALLENGE: HUMAN RESOURCES FOR HEALTH

• Engaging skill-sets and not simply personnel
• HRH assessment for model of care
• Allied Health
• Nutritionist
• Developmental Disabilities
• Health Economist & Epidemiologist

CHALLENGE: LEGISLATION

• Governance
• Framework Convention on Tobacco Control (FCTC) – Tobacco Control Bill
• Pharmacy Act
• Nurses & Midwives Act
• National Health Insurance Act
• Public Health Agency
CHALLENGE: LABORATORY STRENGTHENING

- DNA PCR capacity building
- Proposal writing and development of business plans
- Training medical technologists & laboratory technicians
- Integration of laboratory information systems across private and public sectors
- Development of a National Strategic Lab Plan
- Maintaining CAP Accreditation

CHALLENGE: MENTAL HEALTH

- National Strategic Plan development
- Strengthening of evaluation and implementation of results from Mental Health Gap Action Programme (mhGAP) pilot
- Training for members of the community
- Revision of legislation
- Supportive services and facilities including home care
- Mental health support program for persons with developmental disabilities and their families/caregivers
CHALLENGE: INFORMATION & COMMUNICATION TECHNOLOGY

• Expanding IT infrastructure and management capacity
• Immediate HMIS needs not addressed
• Strengthened eHealth and Telemedicine across the archipelago to improve efficiencies, training and monitoring for better health outcomes,
• Procurement of data registry software for national cancer program

HEALTH IN ALL POLICIES

• Core data sets for sharing
• Work plan and timetable for accomplishments (M&E)
• Secured web-based communication
• Regularly scheduled meetings of Ministers
• Formalize partnerships for specified projects
• The direct, indirect, health, social and other costs associated with our leading morbidities and mortalities are not sustainable and will cripple my nation.
• To rescue our health system and nation, the scales now need to be tipped toward primary care while ensuring appropriate capacity / intervention for catastrophic illnesses.
• Advancing models of services & standards of care
• Monitoring & Evaluation programme to document and strengthen service
• Legislation/Single governance
• Evaluation and research on the root causes of violence
• Technical support to address human resource gaps
• Disaster Preparedness & Emergency Response
• Health Financing
• Community engagement
CONCLUSION

The Bahamas has:

• Overcome many challenges in the past but has a restored will to achieve real progress.
• We face the daunting threat of the one of the worst health profiles in the Americas... complicated by a geographic (archipelagic) handicap and an economic assessment that is unhelpful.
• Addressing violence in the Bahamas may lead to the public health breakthrough of the century.
• We require a Bahamian solution to manage our unique(peculiar) circumstances – yet one that is based on the principles of international best practices and evidence.

*Forward, Upward, Onward, Together*
Thank You!

The Honourable Dr. Duane E.L. Sands, MD
duanesands1962@gmail.com

Barraterre, Exuma
Women’s Health: Disparities in the Caribbean Population Locally and Globally

Ambereen Sleemi, MD, MPH
Urogynecologist, Executive Director
International Medical Response

Purpose and Objectives

**PURPOSE**
Discuss the health disparities in caring for women in the Caribbean.

**OBJECTIVES**
- Understand women’s health disparities in the Caribbean
- Outline factors leading to disparities
- Demonstrate solutions to alleviate these disparities

**FINANCIAL DISCLOSURE**
I have no financial disclosures.
Topics to be covered

• Global state of women’s health
• Maternal health
  – Death and disability
• Gynecologic Health
  – Cancers
  – Uterine conditions
    • Fibroids
    • Endometriosis
  – Prolapse and Incontinence
• Overall health
  – Chronic conditions

International Medical Response

• Founded in 2013
• to support and enhance healthcare systems through local partnerships
• Support surgical training focused on fistula and pelvic reconstruction
• Current programs in Haiti, Liberia, Malawi
Global state of women’s health

• Maternal Health
  – How are we doing in caring for pregnant women?
  – Depends where you are born
  – Access to maternal care

Where is it deadly to have a baby?
MMR per 100,000 live births, 2008
Current state of global maternal affairs

• Birth around the world: 800 women die/day due to pregnancy related complications; leading cause of death in 15-19 yo adolescents

• Current rates of maternal mortality- 1 maternal death every 2 minutes (cut by 44% from 1990-2015 ) Alkema, et al 2015

• 99% in SSA

• “Women are not dying of diseases we can’t treat...They are dying because societies have yet to make the decision that their lives are worth saving”- former FIGO President, Mahmoud Fathalla

Caribbean Maternal Health

• Rates of mortality

• Rates in the diasporic populations
  – Maternal Health in the USA
  – Increased rates in minority populations
Gynecologic conditions

• Health disparities in rates of cancer detection
  – Cervical cancer
  – Endometrial cancers

• Deaths from cancer
  – Disparities in death rates for gynecologic cancers
  – Breast cancer and health disparities

Cervix cancer

• Incidence in global populations

• Cervix cancer in Caribbean populations
  – Locally
  – Globally

• Access to treatment
• Vaccine prevention
Cervical cancer mortality

Global incidence and mortality
Endometrial cancers

- Rates of screening in global populations

- Screening in Caribbean populations
  - Locally
  - Globally

- Access to treatment

Breast cancer

- Rates of screening in global populations

- Screening in Caribbean populations
  - Locally
  - Globally

- Access to treatment
- Vaccine prevention
Gyn Conditions

• Uterine Fibroids
  – Rates of distribution
    • Global occurrence
  – Disparity in access to care
    • Surgical
    • Non-surgical
    • Health sequelae
Gynecologic Conditions

• Pelvic Organ Prolapse
  – Diagnosis
  – Treatment
  – Access to care

• Urinary Incontinence
  – Diagnosis
  – Treatment
  – Access to care

Pelvic Organ Prolapse

• Diagnosis

• Treatment

• Occurrence in the Caribbean population
  – Access to care
Urine Incontinence

- Diagnosis
- Treatment
- Occurrence in the Caribbean Population
  - Access to treatment
  - Disparities in care
  - “natural” aging

Women’s Health

- Overall disparities in women’s health care:
  - Heart disease/stroke
    - Lack of diagnosis
    - Access to care
    - Death and disability
  - Other chronic conditions
Summary

• Overall disparities exist in caring for women globally
• Local disparities in the Caribbean population exist
  – Awareness
  – Vigilance
  – Advocacy

Thank you!

Email: info@internationalmedicalresponse.org

IG:@internationalmedicalresponse

Twitter:
@IMR_MedResponse
@globalgyno
State of the Art: Hand-held Ultrasound & Teleradiology

June 3, 2021

Berndt P Schmit, MD MBOE
Associate Professor of Radiology
Section Chief Emergency Radiology
University of Arizona

Disclosures

• Founder of Humanitarian Radiology Development Corps (501c3)
• Consultant with Radiology Business Solutions
• Co-founder of SonoArmour
• Advisor for VistaScan
• No financial conflicts
Objectives

- Review Hand-held Ultrasound
- Review Teleradiology
- Review Concept for off-site Ultrasound deployment in the Bahamas
- Review CT & MRI systems: unique market opportunity in the USA

Hand-held Ultrasound Equipment

- New Era
  - The new Stethoscope

- Point of Care Ultrasound
- Augmented Physical Exam
- Austere environment
  - Military
  - Disaster events
  - Low-Income regions
  - Isolation
    - Geographic dispersion
    - Maritime & Space
Hand-held Ultrasound Equipment

- Many options
- Improving quality
- Decreasing price

Butterfly
Apple or Android
$2000 + Subscription

Clarius
Color Doppler
Multiple Probes
Apple or Android
$7-10,000
**Hand-held Ultrasound Equipment**

**GE V-scan**
- 2 headed probe
- Color Doppler
- $15,000

**Philips Lumify**
- 3 probes
- Color Doppler
- $7,777

**SonoQue**
- Wireless
- Apple
- Multiple probes
- Some have Doppler
- $1899 - $5000

**SonoScanner (France)**
- Color Doppler
- 3 sizes
Teleradiology

- Part of Telemedicine
- Mature industry in the Developed world
- Established Regulatory & Billing processes
  - No final reads from outside USA for Medicare
  - Military bases – USA equivalent

- Driver of Teleradiology
  - Specialization
  - Access
  - Time zone diversification for night coverage

Hand-held Ultrasound Equipment

VistaScan
Android or PC
Multiple probes
No Doppler
$1995
Teleradiology

- PACS
  - Picture Archiving Communication System
  - DICOM
  - HIPPA compliance & data security

- Equipment
  - Storage
    - Terabytes of data
    - Cloud vs local storage
  - Hardware
    - Monitors – Diagnostic quality & regulations
    - Agnostic equipment – not a proprietary computer
    - Simplification
      - Web enabled
      - Thin Client
      - Client side rendering

Digital Image Access

Viewing solutions beyond PACS

Smartphone

- Mobile, secure, simple
- Texting - Chat style report
- Scrollable images

Convenience is Key!
Teleradiology

• Data management
  – Client side rendering (average CT scan is 50Mb)
  – Server side rendering

• Data Transmission
  – Cell phone: 5-7 Mbs
  – Cable & Fiber: 1Gb is now residential service
  – Satellite: 512k, very expensive!
  – Need 100Mb service
  – Bottle neck is often the Hospital firewall & hospital network
  – 10 servers to cross the country causes significant latency issues

Teleradiology

• Capacity Development in Low Income Countries
  
  Trying to build independent local radiology
  
  – Promote local autonomy
    • Consults
    • Teaching
    • Backup – vacation or illness
  – Dis-employment
    • HRD Corps provides no final reads
      We don’t want to take someone’s job!
Equipment Market Trends - USA

- **NEMA rule XR-29:**
  - Radiation dose reduction technology for CT scanners
  - Into effect January 2016

The NEMA XR-29 standard (MITA Smart Dose) specifies four attributes of CT scanners that "contribute to or help perform optimization and or management of doses of ionizing radiation while still enabling the system to deliver the diagnostic image quality needed by the physician." CT scanners meeting the XR-29 Standard have the following:
- DICOM-compliant radiation dose structured reporting. See NEMA XR 29-2013 (Standard Attributes on CT Equipment Related to Dose Optimization and Management) and http://dicom.nema.org/.
- Dose check features. See NEMA XR 25-2010 (Computed Tomography Dose Check).
- Automatic exposure control. See NEMA XR-28-2013 (Supplemental Requirements for User Information and System Function Related to Dose in CT).
- Reference adult and pediatric protocols. See NEMA XR-28-2013 (Supplemental Requirements for User Information and System Function Related to Dose in CT).
Equipment Market Trends - USA

• XR-29 impact on CT scanners
  – Upgrade costs about $100,000
  – Many 4, 8, 16 slice helical CT scanners were rendered obsolete in the USA
  – These CT scanners are “Junk priced” (Vendor Communication)
  – Most expensive wear component is the X-ray generating ‘tube’
    • Costs about $60,000

Equipment Market Trends - USA

• MR systems are to be ACR accredited to meet payor requirements
• Many low field MR systems are not being accredited
  – $3000+ per year
  – Multiple Phantoms
  – Multiple exam types

ACR will use phantom images to assess:
• Limiting high-contrast spatial resolution
• Slice thickness accuracy
• Distance measurement and accuracy
• Signal uniformity
• Image ghosting ratio
• Low-contrast detectability
• Slice positioning accuracy
• Image artifacts
Equipment Market Trends - USA

- Unique time in Medical imaging market
- 4-16 slice helical CT scanners and Low field MR systems are being refurbished & sent to L/MIC
- Acquisition cost is minimal
- Real cost for implementing CT or MR:
  - De-installation ($20,000)
  - Refurbishment (0 – $ 60,000)
  - Transport ($20,000)
  - Construction (0 - $60,000)
  - Installation & calibration ($30,000)
  - Total: $70,000-190,000

Summary

- Teleradiology is a mature technology
- Hand-held Ultrasound is game changer
- Excellent mid-life CT & MR systems have low acquisition cost due to regulatory changes in the USA
Implementing Point of Care Ultrasound in an Austere Setting

June 3, 2021

Berndt P Schmit, MD MBOE
Associate Professor of Radiology
Section Chief Emergency Radiology
University of Arizona

Thank You!

bpschmit12@gmail.com

St Francois Hospital, Port au Prince
PACS implementation, Jan 2018
Objectives

• Review Ultrasound training in the USA
• Review Ultrasound training in a Low Income Country
• Review Ultrasound training for the Pre-hospital environment

Disclosures

• Founder of Humanitarian Radiology Development Corps (501c3)
• Consultant with Radiology Business Solutions
• Co-founder of SonoArmour
• Advisor for VistaScan
• No financial conflicts
Ultrasound Training

• **USA Ultrasound Technologist**
  – 2 year dedicated program, after bachelors degree
  – Often need extra-experience before fully comfortable with scanning

• Broad spectrum of exams require broad spectrum of skills
  – Easy Exams: large anatomic stationary structures
    • Gall bladder, kidney
  – Difficult Exams: Small, mobile, distant, vascular
    • Renal Arteries, Fetal

• Partial training
  – The “80-20 rule”
  – 20% of the training allows one to do 80% of the patients

• POCUS (point of care ultrasound)
  – FAST (Focused Assessment with Sonography for Trauma)
  – eFAST (Extended = pleural exam for pneumothorax & effusion)

• Obstetrical
• Cardiac
• Vascular
• New Paradigm
  – Focused training to match clinical needs
GHESKIO Ultrasound Training Program
Port au Prince, Haiti

- Goal: train existing clinical staff to become a basic Ultrasound technologist.
- Episodic Hands-on training with distance learning
- Six 1 week training modules
- Testing
- Independent scanning together

- Selected 2 mid-wives and 1 X-ray Technician
- Commitment to stay at GHESKIO and to train the next cohort
- Began July 2019
- Anticipated completion August 2020

GHESKIO Ultrasound Training Program
Port au Prince, Haiti

- Selecting the students
- Donating the ultrasound equipment
GHESKIO Ultrasound Training Program
Port au Prince, Haiti

- Hands-on training

GHESKIO
Port au Prince, Haiti

- Long-term goal
  - Full radiology department
  - Begin with Ultrasound section
Ultrasound FAST Exam Training Project
Green Valley, Arizona

- Two 45 min training sessions
  - Phase 1: Morrison’s Pouch
  - Phase 2: FAST Exam
- Paramedics & Emergency Technicians
- Hand-held ultrasound
- Ultrasound images obtained on volunteers in moving ambulance
- 70% of images were diagnostic

Abstract presented ARRS April 2021
Green Valley Paramedics

- **Phase 1: Morrison’s Pouch**
  - 30 min lecture and 10 minutes of hands on training of Morrison’s pouch
  - Imaged volunteers in the back of a moving ambulance
    - 60 seconds per attempt. 3 attempts each.
    - 71% success

Fire Department Paramedics

Ultrasound FAST exam training project

- **FAST**: Focused Assessment with Sonography for Trauma

Morrison’s Pouch
Green Valley Paramedics

• Phase 2: FAST Exam
  – Another 30 min lecture and additional 10 minutes of hands-on training for FAST exam
  – Imaged volunteers in the back of a moving ambulance
    • Average of 43 seconds for each of the 4 images
    • 70% success
Green Valley Paramedics

**Results**

- Paramedics were able to generate adequate FAST images 70% of the time in a field setting after brief focused training.

- After the Phase 2 lecture, the paramedics were able to correctly identify free fluid on control FAST images 79% of the time.

- Post study follow up exam, paramedics were able to correctly identify free fluid on control FAST images 93% of the time.
Green Valley Paramedics
Conclusions

• Focused training of novices can lead to adequate ultrasound scanning capability in a field setting

• Seeing images of Normals and Pathology leads to quick recognition capability

• Hands-on training is key to develop scanning skills

• We only used static images
  – Using video clips would increase the visualization success

• Cell phone can text, or email the images
  – Send Video?

Northern Haiti Obstetric Programs
Cap Haitien, 2021

• Partnership between HRD Corps and Konbit Sante
• Two OB Clinics
  – Serving Sante
  – Unite De Lutte Pour La Sante
Summary

- Ultrasound training is a sophisticated skill
- Focused ultrasound training may be appropriate for the austere environment

Thank You!
Changing Paradigms of Pulmonary Tuberculosis: A Radiologist’s Perspective

Michelle Hershman, MD
Health Disparities Conference 2021

Disclosures

- No relevant disclosures
Goals and Objectives

- Describe the classic radiographic appearances of pulmonary tuberculosis (TB)
- Review the origins of the classing teaching of pulmonary TB
- Differentiate radiographic appearance of TB in immunocompetent vs immunocompromised patient
- Describe the role of CT and future direction of TB treatment in second and third world countries

Introduction

- Tuberculosis (TB) is caused by one of several mycobacterial species
  - M. tuberculosis most common, M. bovis, M. africanum, and others
- Airborne mycobacteria transmitted by droplets
  - Suspended in the air for hours after an infected person coughs, speaks, or sneezes

https://www.1stclassmed.com/
**Epidemiology**

- TB is one of the top 10 causes of death worldwide
- Approximately 25% of the world’s population infected

---

**Primary vs Post Primary TB - Classic Teaching**

<table>
<thead>
<tr>
<th>Inhaled TB Droplets</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
</tr>
<tr>
<td>90%</td>
</tr>
<tr>
<td>5%</td>
</tr>
</tbody>
</table>

**Primary TB**
- Immune system inadequate
- Active TB within 1-2 years

**Latent**
- No symptoms
- Noncontagious
- Negative CXR

**Reactivation TB**
- Immune system effective
- Reactivate at later time

---


Primary TB- Classic Teaching

- Traditionally considered a disease of childhood
  - Often not suspected in adults → misdiagnosis

- However, 23-34% of adult TB cases are primary in developed countries

- Develops shortly after infection

Post Primary TB- Classic Teaching

- Traditionally considered reactivation of latent disease

- Typically in adults

- Develops after long period of latent infection

- Patients in endemic areas more likely to be infected by a second strain of TB rather than reactivation

- Opposite holds true in developed countries
Primary TB - Radiographic Appearance

- Consolidation in any lobe (middle and lower more common)
  - Looks like bacterial pneumonia + LAD
  - No response to conventional abx

- LAD - more common in children
  - 96% children, 43% adults

Primary TB - Lymphadenopathy

- Central low attenuation
  - Necrosis
  - Suggests active disease

- Peripheral enhancement
  - Granulomatous inflammatory tissue

- Can be sole feature of TB, particularly in infants and children

- CT more sensitive to detect LAD

Nachiappan et al. RadioGraphics 2017;37:52-72
**“King’s Evil” Scrofula**

*Image of a person with a neck lump and a historical illustration of a town meeting.*

[Link to "Brought To Life" website](http://broughttolife.sciencemuseum.org.uk/broughttolife/techniques/kingsevil)

[Link to Gold Coin used in the ceremony of touching for the King's Evil](https://www.bl.uk/collection-items/gold-coin-used-in-the-ceremony-of-touching-for-the-kings-evil)

**“Angel” Gold Piece**

[Image of an Angel gold piece.]

**Ghon Lesion and Ranke Complex**

*Image of the lungs showing the Ghon Complex and Ranke Complex.*

- **Ghon Complex**
  - Primary Lymph nodes
  - Ghon Lesion "tuberculoma"
- **Calcification** → **Ranke Complex**

[Adapted from https://myradnotes.wordpress.com/2010/01/12/tuberculosis]
Primary TB- Radiographic Appearance

- If cavitation occurs → “Primary Progressive”
  - 29% in one study
  - Hematogenous spread → Can be miliary

- Pleural effusions (25% of proven TB cases)
  - Mostly unilateral
  - Rarely complicated
    - Empyema
    - Fistulas
    - Bony erosion

Empyema

35 y/o male with chronic empyema due to TB infection. Arrows show extension into the chest wall. Arrowheads show marked pleural thickening and calcification.

Nachiappan et al. RadioGraphics 2017;37:52-72
Post Primary TB- Radiologic Appearance

- Cavities

- Consolidation (upper lobes more common)
  - Upper lobe disease perhaps related to
    - increased oxygen tension
    - reduced lymphatic drainage and vascular perfusion
    - reduced movement of lung apices

- Centrilobular nodules- indicator of active disease (95%)
  - Endobronchial spread

Post Primary TB- Radiographic Appearance

Cavities in Upper Lobes

Courtesy of Diana Palacio, MD
Post Primary TB - Radiographic Appearance

- Cavitation
- Centrilobular Tree-in-bud Nodules
- Consolidation
Post Primary TB - Radiographic Appearance

Fistula Formation

 Courtesy of Diana Palacio, MD

 Courtesy of Rosita Shah, MD
Results from hematogenous spread of TB
- Affects 1-7% of infected patients
- Usually in children or immunocompromised patients
- Can be in primary or post primary disease
- 2-3 mm nodules in random distribution
- CT more sensitive than XR
Miliary TB - Radiologic Appearance

31 y/o male with HIV

Classification Paradigms

1. Primary and post primary imaging features often overlap
   - Some say they can look identical!

Looks at historical trajectory of individual patient. Interesting, but probably not relevant because post primary disease in endemic areas are likely **new** infection.
Classification Paradigms

2. Active vs inactive or latent disease

Concern is: ARE YOU CONTAGIOUS?
Problem is: Active disease with negative CXR
“Growing” active infection before “bomb goes off” and develop pneumonia and cavitation

Classification Paradigms

3. Immunocompetent vs immunocompromised

Relevant because correlates better with behavior of TB based on what is seen on imaging.
Classification Paradigms

1. Primary and post primary imaging features often overlap
   - Some say they can look identical!

2. Active vs inactive or latent disease

3. Immunocompetent vs immunocompromised

Active vs Inactive TB

Table 3: Imaging Findings of Active Tuberculosis and Previous (Inactive) Tuberculosis

<table>
<thead>
<tr>
<th>Active tuberculosis</th>
<th>Previous (inactive) tuberculosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cavitation</td>
<td>Fibronodular scarring*</td>
</tr>
<tr>
<td>Consolidation</td>
<td>Peribronchial fibrosis</td>
</tr>
<tr>
<td>Centrilobular and tree-in-bud nodules</td>
<td>Well-defined nodular opacities</td>
</tr>
<tr>
<td>Milary nodules</td>
<td>Traction bronchiectasis</td>
</tr>
<tr>
<td>Lymphadenopathy</td>
<td>Apical and upper lung zone volume loss</td>
</tr>
<tr>
<td>Pleural effusion</td>
<td>Calcified granulomas or lymph nodes*</td>
</tr>
</tbody>
</table>

*Findings must be stable for at least 6 months. *Calcified granulomas or lymph nodes are the only finding, this finding would be grouped with latent tuberculosis infection.
Active TB

56 y/o male with known TB

Latent vs Inactive TB - Radiographic Appearance

- **Latent TB** - normal CXR
- **Inactive disease** - abnormal, but stable CXR findings

46 y/o male with prior TB infection. Arrow points to a cavity and arrowhead points to peribronchial fibrosis and architectural distortion.

Nachiappan et al. Radiographics 2017;37:52-72
Primary and post primary imaging features often overlap
- Some say they can look identical!

Active vs inactive or latent disease?

Immunocompetent vs immunocompromised?
Rozenshtein et al. argue that radiographic appearance of TB does not depend on time since infection.

- **Immunocompetent host** - upper lobe cavitary disease
- **Immunocompromised host** - lower lung disease, adenopathy, effusions

**Dogma Disproved**

- NO DIFFERENCE in radiographic appearances of primary or post primary TB
- Prevalence of TB high throughout history
  - Most people presumably infected in childhood and reactivated later in life
  - If not adherent to classic teaching → “atypical” disease
Dogma Disproved

- HIV+ patients had “atypical” disease (lower lobe disease and adenopathy)

- Jones et al.- radiographic appearance of TB in HIV+ patients correlated with stage of HIV infection
  - CD4>354 cells/μL → upper lobe disease
  - CD4> 200 cells/μL → pleural effusions
  - CD4< 200 cells/μL → adenopathy

- Post et al.- PPV lower lung disease for CD4<200 cells/μL was 89%

Dogma Disproved

- Molecular epidemiology- powerful new tool using DNA fingerprinting with restriction fragment length polymorphisms in TB strains

- Clustered cases observed in miniepidemics → primary disease

- Unique cases → reactivation of latent infection
Jones et al. and Geng et al. used molecular techniques to correlate with radiographic findings in patients with primary and reactivation TB and found no difference.

- **HIV- group**: 86% reactivation (unique isolates) and 80% primary (clustered) cases had upper lobe disease.
- **HIV+ group**: 63% reactivation and 63% primary disease had atypical pattern.

**Dogma Disproved**

Frostad et al. (1944) - TB originating in apex of lung was “infrequent occurrence”.

- 52% adult and 82% peds active TB patients had upper lobe disease.

Poulsen (1947) - small sample size, homogeneous population, unusually virulent strain.

Gedde-Dahl (1952) - WWII created multiyear gaps in PPD testing, impoverished and malnourished patients.

**Origins of Classic Teaching**
Origins of Classic Teaching

- Lack of human tissue to validate animal models
- M. tuberculosis an obligate human pathogen
  - Much of current understanding based on studies of M. bovis
  - No evidence that M. bovis produces post primary TB in any species
  - Aggressive primary TB with M. bovis that develops cavities by erosion of caseating granulomas

- M. tuberculosis is most successful when it infects a child, hiding for decades, contagious with no/mild symptoms
  - Sufficient immunity to prevent infection in every other part of body

- MTB protected from macrophages → forms toxin that causes necrosis and cavitation
Why does it matter?

- **Post primary TB** - contacts of patient undergo screening for conversion
  - If none → treatment of index patient prevents spread

- **Primary TB** - search for source of infection
  - Treatment of index patient insufficient to control spread

Chest Radiography (CXR)

- Chest radiography is mainstay for diagnosis of TB
  - **Poor specificity** for diagnosis

- Single PA view considered adequate

- Diagnosis of active disease based on stability of pulmonary lesions

- 15% of proven TB cases have normal CXR
Computed Tomography (CT)

- Computed tomography (CT) 2x sensitive than CXR to detect cavities
- Useful in detection of active vs inactive TB
- Increased sensitivity in detecting miliary TB
- Superior modality to detect airway stenosis (10-40% of reported active TB cases)

Computed Tomography (CT)

- Can correctly diagnose 91% of pulmonary TB cases
- Can correctly diagnose 80% of active TB cases
- Can correctly diagnose 89% of inactive TB cases
- More sensitive in detecting parenchymal disease and adenopathy than CXR
CXR vs CT

Pediatric patient with normal CXR

Algorithm for Role of Imaging in TB Diagnosis

Suspected TB (no response to abx)

1. Sputum smear
   2. CXR

CXR suggests alternative diagnosis

Smear Positive Irrespective of CXR

Start treatment

Smear Negative/ No sputum

CXR definitive for active TB

Smear Positive Irrespective of CXR

Start treatment

Clinical and lab profile equivocal

CECT confirmed

Clinical and lab profile concordant

Start treatment

CECT confirmed

CXR healed TB

Adapted from Bhalla et al. IJRI 2015; 25:213-225
Other Useful Imaging Modalities- PET/CT

- PET/CT- useful for diagnosis, staging, and assessing response to therapy

Other Useful Imaging Modalities- MRI

- MRI- useful to evaluate mediastinal nodes
- No ionizing radiation like CT- used for follow up
  - Pleural abnormalities
- Limited by cost and availability
Role of CT - what if limited access/availability?
### How can we improve?

<table>
<thead>
<tr>
<th>Biology</th>
<th>Exposure</th>
<th>“Developing” Viable</th>
<th>Active</th>
<th>Cavity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXR</td>
<td>Normal</td>
<td>Normal</td>
<td>15% missed</td>
<td>Positive</td>
</tr>
<tr>
<td>CECT</td>
<td>Normal</td>
<td>?</td>
<td>Positive</td>
<td>Positive</td>
</tr>
</tbody>
</table>

### Good Enough?

**Reported Tuberculosis (TB) Cases and Rates United States, 1993–2018**

- **Graph showing trends in TB cases and incidence rates across different regions and years.**

- **Bar chart showing the number of TB cases per 100,000 population from 1993 to 2018.**
COVID vs TB - highlighting the disparity gap

- 4000 COVID-19 trials vs 1100 TB trials
- TB *disproportionately affects* Africa, Asia, and Eastern Europe *vs* US, Canada, UK, Australia
- BCG vaccine reduced cases in developed nations
  - focus shifted to other diseases
  - continued to spread in developing countries

Why haven’t we declared a TB pandemic?

- Would the response to TB have been different if the countries heavily affected were in the US and Europe versus those in Africa?
Classic paradigms and terminology regarding reactivation and primary TB should be reconsidered

Role of radiologist may be to determine active vs inactive or latent disease

TB manifestations are highly dependent on immune status

Conclusions

CT more sensitive and specific in diagnosis and differentiating between active and inactive disease

Are we content with current diagnosis and treatment algorithms?

Low dose CT screening program for early detection of TB?

How do we narrow the disparity gap?

May be difficult to acquire CT due to lack of radiology capacity in certain areas of the world

Rely more on CXR, sputum, clinical suspicion
Contact: Michelle Hershman, MD
Michelle.Hershman@pennmedicine.upenn.edu

References

References

21. Frostad S. Tuberculosis in the air: a clinical pneumological investigation on the earliest forms of pulmonary tuberculosis with special view to its relation to the primary infection. Copenhagen, Denmark: Munksgaard, 1944
Use of System-Level Improvements for Diabetes Management

Gail Nunlee-Bland, M.D.
Professor, Pediatrics and Medicine
Howard University College of Medicine

Purpose and Objectives

PURPOSE
Improving Diabetes Care and Promoting Health in Populations at Risk.

OBJECTIVES
- Ensure treatment decisions are timely and evidenced based
- Use of the Chronic Care Model for patient centered approach
- Use of team-based care and community involvement
- Assess diabetes health care maintenance using data metrics

FINANCIAL DISCLOSURE
I have no financial disclosures.
Population
• Predominantly African Americans
  • 54% of District of Columbia residents
• Low income
• Metropolitan Service Area includes
  • District of Columbia
  • Maryland
  • Virginia

Agenda
• Diabetes statistics North America and Caribbean
• Evidence-based treatment guidelines
• Glucose targets for prevention of macro and microvascular disease
• Use of the Chronic Care Model
• Using E-health as a component of the Chronic Care Model
• Patient centric management
• Government’s role in diabetes population management
HOSPITAL OVERVIEW

MISSION
The mission of Howard University Hospital is to provide exemplary education, service and research that promote patient centered collaborative care and advocate for the elimination of health disparities.

VISION
Leaders in the advance of health care and health equality, locally and globally.

VALUES
C  Collaboration
A  Accountability
R  Respect
E  Excellence
S  Service

Diabetes Prevalence By Race

Source: DC DOH, BRFSS 2010 CDC BRFSS, 2010
In 2019, IDF estimates that:

- 1 in 11 adults (20-79 years) have diabetes, affecting 463 million people.
- 10% of global health expenditure is spent on diabetes, amounting to USD 760 billion.
- 1,110,100 children and adolescents below 20 years have type 1 diabetes.
- 1 in 2 adults with diabetes are undiagnosed, affecting 232 million people.
- 1 in 13 adults (20-79 years) have impaired glucose tolerance, affecting 374 million people.
- 1 in 6 live births (20 million) are affected by hyperglycaemia in pregnancy, 84% of which is due to gestational diabetes.
- Over 3 in 4 people with diabetes live in low- and middle-income countries.
- 1 in 5 people with diabetes are above 65 years old, affecting 136 million people.

Highlights:

- 38 million more adults with diabetes than in 2017.
- 13 million more adults above 65 years old with diabetes than in 2017.
- 3,600 more children and adolescents have type 1 diabetes than in 2017.
- 22 million more adults are at risk of developing diabetes than in 2017.
- Almost two-thirds (63%) of people with diabetes are of working age (under 60 years).
- USD 33 billion more is spent on diabetes than in 2017.
- 20 million more adults with diabetes are undiagnosed than in 2017.
Number of people (20-79 years) with diabetes globally and by IDF Region

North America & Caribbean
- 2000: 63 million
- 2010: 56 million
- 2019: 48 million

Europe
- 2000: 60 million
- 2010: 66 million
- 2019: 59 million

South-East Asia
- 2000: 155 million
- 2010: 115 million
- 2019: 88 million

Western Pacific
- 2000: 212 million
- 2010: 197 million
- 2019: 165 million

Africa
- 2000: 47 million
- 2010: 29 million
- 2019: 19 million

Middle East & North Africa
- 2000: 108 million
- 2010: 76 million
- 2019: 55 million

North American and Caribbean Key Country Data
ADA-Recommended Glucose Goals

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Treatment Goal for Nonpregnant Adults</th>
</tr>
</thead>
</table>
| A1C (%)                         | Individualize  
• <7.0% for most nonpregnant adults  
• <6.5 if it can be achieved without significant hypoglycemia or other adverse effects of treatment*  
• <8% for those at risk† |
| Preprandial glucose (mg/dL)     | 80-130                                                                                               |
| Peak postprandial glucose (mg/dL)| <180                                                                                                 |

*Appropriate patients  
• Short duration of diabetes  
• T2D treated only with lifestyle or metformin  
• Long life expectancy  
• No significant cardiovascular disease

†At risk patients  
• History of severe hypoglycemia  
• Limited life expectancy  
• Advanced micro- or macrovascular complications  
• Extensive comorbid conditions  
• Long-standing T2D in which A1C goal has been difficult to attain despite intensive efforts
ADA-Recommended Approach to Management of Hyperglycemia

A1C and Mortality in Clinical Practice


ADA. Diabetes Care. 2018;41:S55-S64.
Macrovascular Benefits of Glycemic Control Depend on Duration of Diabetes

Veterans Affairs Diabetes Trial

Effect of Intensive glycemic control

Neutral  Redced Risk  Neutral  Elevated Risk

Hazard ratio

0  0.5  1.0  1.5  2.0  2.5  3.0  3.5  4.0

0  3  6  9  12  15  18  21  24  27  30

Years with diabetes

Microvascular Complications of Diabetes

Nephropathy  Retinopathy  Neuropathy

VAIDT, Veterans Affairs Diabetes Trial.
Chronic Care Model

- Delivery System – Team-based approach
- Self-management support
- Decision support – evidence based
- Clinical information systems – registries for patient specific and population-based
- Health systems – quality-oriented culture

Microvascular Complications Increase With Increasing A1C

![Graph showing the increase of microvascular complications with increasing A1C](image)

糖尿病控制和并发症研究 trial

eHealth Enhanced Chronic Care Model

Decision cycle for patient-centered glycemic management in type 2 diabetes.

GOALS OF CARE
- Prevent complications
- Optimize quality of life

REVISE AND AGREE ON MANAGEMENT PLAN
- Review management plan
- Mutual agreement on changes
- Ensured multidisciplinary approach
- Careful monitoring of therapy’s implementation
- Delivery system design
- Decision cycle undertaken regularly

IMPLEMENT MANAGEMENT PLAN
- Patients not meeting goal generally should be seen at least every 3 months as long as progress in being made, more frequent visits should be considered

AGREE ON MANAGEMENT PLAN
- Specify SMART goals:
  - Specific
  - Measurable
  - Achievable
  - Realistic
  - Time limited

CONSIDER SPECIFIC FACTORS THAT IMPACT CHOICE OF TREATMENT
- Individualized HbA1c target
- Impact on weight and hypoglycemia
- Side-effect profile of medication
- Complexity of regimen, i.e., frequency, mode of administration
- Choose regimen to optimize adherence and persistence
- Access, cost, and availability of medication

American Diabetes Association Dia Care 2019;42:S34-S45
eHealth for Chronic Illness

- Institute of Medicine, Agency for Healthcare Research and Quality recommend eHealth as a tool to support self-management in chronic illness
- eHealth technology should have a complete feedback loop of 5 stages
  - Transmission of data and information regarding the health status of the consumer
  - Interpretation of data and information using previously established knowledge and use of evidence-based standards
  - Address the specific need of the individual consumer
  - Timely feedback to the consumer addressing their requirements
  - Regular repetition of the feedback loop
Components of eHealth to Support Chronic Care Model

- Information technology
  - Internet for health information
- Social Networking
- Telehealth
- mHealth (including wearable devices)
- Electronic health records
- Personal health records

Internet for Self-Management Support

- Connecting providers and consumers to secure portals, health applications, social networks, and large databases
Social Networking

• Diabetes online community
• Virtual community
• May encourage consumer empowerment for improved patient-centered care

Telehealth

• Effective in the management of diabetes
• Nurse-led, multi-disciplinary telehealth interventions were effective in improving A1c outcomes
• Telehealth nurse coaching produced higher self-efficacy scores
Video eLearning

Diabetes Workbook
Telehealth Study Summary

• Treatment group reported increased knowledge of diabetes and improved adherence
• Behavior change in better self-management
• More likely to reach a healthy BMI
• More likely to reach and A1c of < 7

PHR Adult Patient Characteristics

<table>
<thead>
<tr>
<th></th>
<th>PHR n=118</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non PHR n=66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age*</td>
<td>Yes</td>
<td>49.84</td>
<td>17.35</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>59.15</td>
<td>15.2</td>
</tr>
<tr>
<td>BMI</td>
<td>Yes</td>
<td>31.43</td>
<td>8.11</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>32.19</td>
<td>8.88</td>
</tr>
<tr>
<td>Pre A1c PHR</td>
<td>Yes</td>
<td>9.22</td>
<td>2.77</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>9.25</td>
<td>2.78</td>
</tr>
<tr>
<td>Post A1cPHR</td>
<td>Yes</td>
<td>8.29</td>
<td>2.12</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>8.55</td>
<td>2.45</td>
</tr>
<tr>
<td>A1c % Change*</td>
<td>Yes</td>
<td>-7.51</td>
<td>16.4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>-3.11</td>
<td>27.17</td>
</tr>
</tbody>
</table>

*significance Age (p<0.0001) and Δ in A1c in PHR group (p<0.003)
Patient Web Portal

<table>
<thead>
<tr>
<th>Patient Demographics</th>
<th>Test group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number (n)</td>
<td>165</td>
<td>202</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>54.3 +/- 14.14</td>
<td>60.27 +/- 12.96</td>
</tr>
<tr>
<td>Female (%)</td>
<td>66.1</td>
<td>64.9</td>
</tr>
<tr>
<td>Male (%)</td>
<td>33.9</td>
<td>35.1</td>
</tr>
</tbody>
</table>

3-month A1c

6-month A1c

"This project has been funded in whole or in part with Federal funds [1G08LM011545-01] from the National Institute of Health National Library of Medicine. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health."
Community Health Workers & Cell Phone Intervention

• Specific Aim – To compare the effectiveness of A1c reduction using cell phone text reminders, CHWs and the combination of both in a Medicaid population

• Methods
  • 18-70 years
  • A1c >8%
  • Randomly assigned to cell phone, CHW, cell phone plus CHW
  • Medicaid or Medicare
  • Baseline, 3-month, 6-month A1cs obtained

Community Health Workers & Cell Phone Intervention

N= 20 CHW

N=19 cell phone

N= 24 CHW + cell phone
Outcomes

- Reduced hemoglobin A1C
- Reduced blood pressure
- Reduced cholesterol
- Fewer ER visits
- Fewer hospital readmissions
- Among an economically disadvantaged population with limited access to care where the differences in diabetes care are most dramatic

Cellular Enabled Glucometers

- Allow for real-time blood glucose result transmission
- Transmits to a physician dashboard
- Allows for implementing management changes between visits.
Results of Pilot Study Using Cellular Enabled Glucometers

- A1c change

![Graph showing A1c change](image-url)
Patient Engagement Using Technology

• Self-management is key in successful diabetes control
• Traditional behavioral methods have shown efficacy, but require significant resources and patient commitment, limiting accessibility to large populations
• Mobile phone technologies have emerged as promising for patient engagement

Patient success story

I.S hemoglobin A1C trend
• Enrolled in the pilot study on 7/30/2018
• Completed pilot study on 10/30/2018
• Back on iGlucose in April 2019

<table>
<thead>
<tr>
<th>HbA1c (%)</th>
<th>9/22/09</th>
<th>04/06/10</th>
<th>12/09/10</th>
<th>02/13/18</th>
<th>08/08/18</th>
<th>10/24/18</th>
<th>04/17/19</th>
<th>06/27/19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.5</td>
<td>12.4</td>
<td>9.4</td>
<td>9.3</td>
<td>11.7</td>
<td>5.9</td>
<td>10.5</td>
<td>7.5</td>
</tr>
</tbody>
</table>
World Health Organization Essential Diabetes Medication

- Intermediate-acting insulin
- Short-acting insulin
- Sulfonylurea
- Metformin
- Glucagon

Health Policy Performance Score by Country, 2010-2015
Summary – Government’s Role in System Level Improvement for Diabetes Management

• Prioritize diabetes care and control
• Develop and implement national plans and strategies to reduce the impact of diabetes
• Extend health promotion programs to reduce the impact of diabetes and its complications
• Promote high-quality research on diabetes

Contact Information

Gail Nunlee-Bland, MD
Professor Pediatrics and Medicine
Howard University College of Medicine
gnunlee-bland@howard.edu
202-865-3350
Reducing the Burden of Prostate Cancer in the Bahamas

Dr. Robin Roberts MD
UWI School of Clinical Medicine & Research, The Bahamas

Purpose and Objectives

PURPOSE
To highlight the burden of Prostate cancer in The Bahamas and the means to reduce it.

OBJECTIVES
- To highlight the epidemiology and financial impact of prostate cancer in the Bahamas
- To propose a community-based screening program to reduce the burden of prostate cancer in the Bahamas

FINANCIAL DISCLOSURE
There are no financial disclosures.
MORE AGGRESSIVE
EARLIER AGE
HIGHER PSA
LESS LIKELY SCREEN
NEVER SCREEN
MORE OBESE

Leading Causes Of Cancer Deaths
This year, there will be more than 1.4 million new cases of cancer in the United States, and 559,650 deaths. At right, the 12 cancers that will claim the greatest number of lives in 2007.

BLACK MEN
MORTALITY RATES

70 – 80% Advanced disease on Initial Presentation

THE PSA STORY

To Screen or Not to Screen??
Prostate Cancer: Decline in Number of Deaths

- Between 1997 and 2007, there was an approximate decline by 35% in prostate cancer deaths while there was a slight increase in 2008, the number dropped again in 2009.

Time (years)  
Estimate number of prostate cancer deaths
41800 31900 28900 27350 27050

Mets

The Commonwealth of the Bahamas
Popln: 350,000
Death Rates (per 100,000) of Total, Breast, and Prostate Cancers, Bahamas 1994-2011

N.B. 1. From 1994 to 2003, “All Cancer” mortality rates included Benign Neoplasms, which are not considered cancers.
Source: Department of Statistics
Prepared by: Health Information and Prevention Unit, 09/2014

Incidence Rates (per 100,000 Population) of Selected Cancers, Bahamas, 1998-2011

N.B. Prostate, breast, and cervical cancer rates are age-specific.
Source: *Princess Margaret Hospital/Cancer Registry, Public Hospitals Authority
Prepared by: Health Information and Prevention Unit, 09/2014
### Risk Groups for Clinically Localized Prostate Cancer

<table>
<thead>
<tr>
<th>Risk group</th>
<th>Characteristics</th>
<th>Expected 10-yr PSA failure-free survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>PSA &lt; 10 and Gleason score &lt; 7 and AJCC stage T1c, T2a</td>
<td>80 - 85%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>PSA = 10 - 20 or Gleason score = 7 or AJCC stage T2b</td>
<td>50 - 60%</td>
</tr>
<tr>
<td>High</td>
<td>PSA &gt; 20 or Gleason score &gt; 7 or AJCC stage T2c, T3</td>
<td>30 - 40%</td>
</tr>
</tbody>
</table>


### PROSTATE CANCER SCREENING
SEPTEMBER 2009 Nassau, Bahamas

- **D’AMICO RISK STRATIFICATION**
- **85 Clinical: S/S + PSA**
  - LOW 14% (12)
  - INTERMEDIATE 27% (23)
  - HIGH 59% (50)
SOLO PRACTICE – PRIVATE PRACTICE
NEW PCA: JAN-JUNE 2018

• 24 PATIENTS FOR PROSTATE BIOPSY
  o CLINICAL PCA
  o ELEVATED PSA

• 21 POSITIVE
  o AVE AGE: 65 YRS
  o 8 PSA > 100NG/ML
  o AVE PSA: 20.1
  o 9 BONE SCANS: 3 POS. NEG: > 40 PSA

SOLO PRACTICE – PRIVATE PRACTICE
NEW PCA: JAN-JUNE 2018

• D’AMICO CLASSIFICATION
  o 14 HIGH RISK (67%)
  o 7 INTERMEDIATE RISK (33%)
  o ZERO LOW RISK
US TOO!!

PROSTATE CANCER: ALL MALES
- EDUCATION
- AWARENESS
- SUPPORT
- CARE
  - US TOO!! PARTNERS
PSA screening - "D" rating:
“there is moderate or high certainty that the service has no benefit or that the harms outweigh the benefits.”
Cancer Society: US TOO
Prostate Screening Clinic Attendance

A Ten Year Review: 2004 to 2013

Dr. Robin Roberts Urology
Clinic Attendance in The Bahamas 2004-2013

5098 Clinic visits

Age of Males Tested 2004-2013
BASELINE & MEDIAN PSA

• PSA BASELINES:
  • 0.7ng/ml - 2.5ng/ml
    o 40 – 49 YRS: ↑14.6X
    o 50 – 59 YRS: ↑7.6X

• BASELINES: Above Median
  o ↑PSA VELOCITY
  o ↑CA AGGRESSIVENES
  o ↑BIOCHEMICAL PROGRESSION
  o ↑MORTALITY RATE
NASSAU PCA SCREENING

- TOTAL OF 7,268 PATIENT VISITS
- CISNET:
  - Statistical modeling to direct interventions
PROSTATE CANCER SCREENING
FREEEPORT GB, SEPTEMBER

- 2012 – 2015
- 1,993 MALE CLINIC VISITS
- TOTAL OF 1844 MEN (57.6y)
- 149 MEN > ONE OCCASION

PROSTATE CANCER SCREENING
FREEEPORT GB, SEPTEMBER

- 2012 – 2015
- 315 FOLLOW –UP VISITS
- ABNORMAL DRE OR PSA
- UROLOGIST ASSESSMENT
Clinical Criteria To Biopsy

- DRE abnormal
- Elevate PSA
- AGE < 75yrs
- Age Specific PSA
- PSA Velocity, Prostate Size
- Comorbidities - QOL
- Close Follow-up by Urologist

*No K4 Score
*No PHI
*No MRI

PROSTATE CANCER SCREENING
FREEPORT GB, SEPTEMBER

- 45 MEN BIOPSIED
- 40 PROSTATE CA
- PPV – 89%
- Ave Age: 66.5yrs
PROSTATE CANCER SCREENING
FREEPORT GB, SEPTEMBER

• D’AMICO RISK STRATIFICATION
  • 40/45 PCA
  • LOW 10% (4)
  • INTERMEDIATE 40% (16)
  • HIGH 50% (20)

PROSTATE CANCER SCREENING
FREEPORT GB, SEPTEMBER

• PROSTATE POSITIVE BIOPSY
  • 7/40 had PSA values > 50 ng/ml
  • 7/40 had values in the range of 20 and 50 ng/ml.
  • Intermediate & High Risk: 30/36 men
    o Gleason 7 (4+3) or higher.
EDITORIAL

Cancer in populations of African Ancestry: studies of the African Caribbean Cancer Consortium

Camille Ragin1 · Elizabeth Blackman1 · Robin Roberts2 · Raleigh Butler2 · Samuel Gathere3 · Darron Halliday2 · Kimlin Ashing4

© Springer International Publishing AG 2017
22nd October 2017

"The Prostate Cancer Screening Clinic in the Bahamas: A Model for Low and Middle Income Countries.”
DOI 10.1007/s10552-017-0972-1
Surgical castration is the gold standard for ADT

The effect of castration on advanced carcinoma of the prostate gland. Arch Surg, 1941

Charles HUGGINS
1901–1997
1966 Nobel Prize

![Graph showing testosterone levels over days post castration.]

**FIGURE 1. Several New Agents Approved Since 2004**

- **2010**
  - Cabazitaxel
  - Abiraterone (post chemo)
  - Enzalutamide (post chemo)
  - Sipuleucel-T

- **2014**
  - Radium 223
  - Enzalutamide (pre chemo)

**FDA Approvals in Metastatic Castration-Resistant Prostate Cancer**

- **2004**
  - Docetaxel

- **2012**
  - Abiraterone (post chemo)

- **2019**
  - Apalutamide
  - Darolutamide
  - Pembrolizumab
  - Olaparid
ADVANCED DISEASE

- ARBIRATERONE $5,000/MTH
- ENZALUTAMIDE $10,000/MTH
- SIPULEUCIL-T $93,000
- APALUTAMIDE $10,000/MTH
- DAROLUTAMIDE $10,000/MTH
- DOCETAXEL $2,500/6 CYCLES
- CABAZITAXEL $48,000
- RADIUM 223 $69,000/6 CYCLES
Implementing the new standards of care for treating metastatic prostate cancer in The Bahamas is Unaffordable

Dr. Robin Roberts
Urology

SOLO PRACTICE – PRIVATE PRACTICE
NEW PCA: JAN-JUNE 2018

• D’AMICO CLASSIFICATION
  ○ 14 HIGH RISK (67%)
  ○ 7 INTERMEDIATE RISK (33%)
  ○ ZERO LOW RISK
PCA – BAHAMAS: TREATMENT

• 8 PTS: PSA > 100, METASTATIC DISEASE
  o HORMONE THERAPY + CHEMOTHERAPY
  o ($700 X4)X8 + ($12,000 X 8)
  o $118,400 FIRST YEAR, Then $22,400/year

  o NB: ABIRATERONE DAILY = $4500/MONTH = $36,000/YR
  o $288,000/yr + $22,400 = $310,400

  o NB: ENZALUTAMIDE DAILY = $8,000/MTH = $96,000/YR
  o $768,000/yr + 22,400 = $790,400

• 13 PTS: TREAT MULTI-MODAL (No Clinical Mets)
  o RADICAL PROSTATECTOMY/RADIATION
  o CHEMOTHERAPY
PCA – BAHAMAS: TREATMENT

• 13 PTS: LOCAL + SYSTEMIC TREATMENT
  o RADICAL PROSTATECTOMY/RADIATION THERAPY
  o $15,000 X13 = $195,000

  o DOCETAXAL $12,000 = $156,000

  o NB: ABIRATERONE DAILY = $4500/MONTH = $36,000/YR
  o $468,000/YR + $36,400 = $504,400

  o NB: ENZALUTAMIDE DAILY = $8,000/MTH = $96,000/YR
  o $1,248,000/YR + 36,400 = $1,284,400

PCA – BAHAMAS: TREATMENT

• TOTAL 21 PTS
  • $469,000

100 PTS / YEAR, 80% ARE INTERMEDIATE + ADVANCED

$1.8 MILLION
PCA – BAHAMAS: TREATMENT

• 13 PTS: LOCAL + SYSTEMIC TREATMENT
  
  • Provange/Sipuleucel-T
  
  • $93,000 – for 1 pt.

The Bahamas cannot afford treating advanced prostate cancer
## Freeport Clinic Update to 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Pt. Visits</th>
<th>Pathology:</th>
<th>Biopsied Pts</th>
<th>Positive:</th>
<th>Low Risk</th>
<th>Intermediate</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2015</td>
<td>1993</td>
<td>Biopsied 45 Pts</td>
<td>40 (10%) Low risk, 16 (40%) Intermediate, 20 (50%) High Risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016-2018</td>
<td>4169</td>
<td>Additional Biopsied 27 Pts</td>
<td>25 (4% Low risk, 11 (44%) Intermediate, 10 (40%) High Risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 803 men – 1 ½ Days
- Is it CULTURE?
- FINGER FEAR?
- Is it EDUCATION?
CONTACT

Dr. Robin Roberts, MD
UWI School of Clinical Medicine & Research, The Bahamas
robinnassau50@yahoo.com
Unraveling the Ancestral Fabric: Exploring The Role Of Epigenetics In Type 2 Diabetes Health Disparities

Maurice B. Fluitt, PhD
Assistant Professor
Division of Endocrinology and Metabolism | Molecular Endocrinology Laboratory
Department of Medicine
Howard University College of Medicine
Washington, DC

Purpose and Objectives

The overall goal of this presentation is to systematically examine the role of epigenetics in understanding type 2 diabetes and its complications in minority communities.

OBJECTIVES

• To address health disparities of Caribbean and African populations locally and abroad
• To understand the complex molecular etiologies underlying type 2 diabetes and its common vascular complications
• To identify the role of epigenetics in type 2 diabetes health disparities
• To understand how epigenetics could improve disease outcomes in type 2 diabetics in minority populations

FINANCIAL DISCLOSURE

There are no financial disclosures.
Howard University College of Medicine

- The Howard University College of Medicine first opened its doors as a medical department in 1868, just three years after the close of the Civil War.

- At that time, newly freed black people were migrating to the nation's capital in large numbers. The founders of the College recognized that the nearly overwhelming health care needs of this population and of other blacks throughout this country would be met best by training students to become highly competent, compassionate physicians who would deliver care in communities having a shortage of health personnel.

Agenda

- The growing concern for Type 2 Diabetes and its complications
- Understanding epigenetics and its role as a missing link in T2DM and its complications
- MicroRNAs as mediators, markers, and potential therapies for T2DM and its complications
- Implications and summary
Diabetes: a Growing Health Problem

30.3 million people have diabetes.

That’s about 1 out of every 10 people.

1 out of 4 don’t know they have diabetes.

Diabetes MELLITUS

Type 1

Type 2

5%

95%
Type 2 Diabetes Mellitus: A Matter of Race

Figure 1. Estimated age-adjusted prevalence of diagnosed diabetes by race/ethnicity and sex among adults aged ≥18 years, United States, 2013–2015

Type 2 Diabetes Mellitus: A Series of Molecular Events
The Search for Type 2 Diabetes Genes and Risk Markers

- Linkage Studies
  - CAPN10
  - TCFT2L2 (rs7903146)

- Candidate Genes
  - PPARG (P12A)
  - KCNJ11 (E23K)

- Genome Wide Association Studies (GWAS)
  - ~153 variants for T2D mapping to more than 120 loci

- Rare Variants
- Structural Variants
- Protective Variants
- Genetic Architecture of T2DM
The Search for Type 2 Diabetes Genes and Risk Markers

- 'Epi' (Greek) meaning above, over
- Epigenetics
  - Modifications regulating biological process without changing the DNA sequence
  - Influenced by environmental factors
  - Reversible and modifiable!

Epigenetics: the Heart of the Type 2 Diabetes and its complications

- The challenge with current diabetic treatment options and interventions are not sufficient to prevent long-term complications
- Early and long-lasting exposure to hyperglycemia can leave an imprint and can alter the expression of genes in various cells
- Long-term persistence of epigenetic abnormalities represent key mechanisms underlying “metabolic memory”.
- Metabolic memory is responsible for the progression of micro- and macro-vascular diabetic complications, even after normalized glycaemia
MicroRNAs: Tiny molecular regulators with major implications in disease

- What are microRNAs?
  - Small non-coding RNAs (19-25 nucleotides in length)

- How do microRNAs function?
  - Translational repression
  - mRNA degradation

- Why are microRNAs important?
  - Target mRNAs to fine-tune gene expression
  - Regulate key biological processes
Noncoding RNAs: From “trash” to treasure

- Genetic complexity is most likely derived from noncoding RNA (ncRNA)
  - Functional RNA molecule that is transcribed from DNA, but not translated into protein
- Majority of the mammalian genome is transcribed into regulatory non-coding RNA
- Non-coding RNA was considered “Junk DNA”
  - microRNAs
  - Long noncoding RNAs
  - Circular RNAs

MicroRNAs (miRNAs)
- ~22 nucleotides in length
- Mediates posttranscriptional silencing
- Over 2588 mature miRNAs, modulating more than 30% of protein-coding genes
- Regulate key biological processes

MicroRNAs (miRNA) are exciting molecular regulators and attractive early markers for diabetes and its complications.

miRNAs as markers and mediators of ED

Plasma miR-126 decreases in categories of glucose tolerance

Plasma levels of miR-126 across categories of normal glucose tolerance (NGT), impaired fasting glucose/impaired glucose tolerance (IFG/IGT), and manifest DM. Zampetaki et al. Circ Res. 2010;107:810-817
miRNAs as markers and mediators of ED

Plasma miR-126 is altered before manifestation of DM

Endothelial miR-126 is reduced in a glucose dependent manner


The History of MicroRNAs: From Cancer and Beyond…

miRNA-15a, -15b, and -499 are reduced in pre-diabetic African-American adults

Flutt et al. Jacobs J Diabetes Endocrinol. 2016 December; 2(1)
Summary

- Epigenetics can provide insight into the T2DM disparity in minority populations
- miRNAs provide an exciting and attractive platform for biomarker discovery and therapeutic intervention for diabetes and its complications
- Our team investigates the translational utility of miRNAs to understand the complex underpinnings of T2DM and its complications

Contact Information

Maurice B. Fluitt, PhD
Assistant Professor
Howard University
maurice.fluitt@howard.edu
202.865.4213
Metabolic abnormalities in ESRD that explain CV risk

Clinton D. Brown, MD, FASN, FAHA, FNLA
Professor of Medicine
SUNY Downstate Medical Center

Purpose and Objectives

**PURPOSE**
1) Prevalence of End Stage Renal Disease (ESRD) in patients of African descent
2) Introduce the topic of Post Translation Protein Modification (PTPM)
3) Effect of PTPM on vascular Disease in patients with ESRD

**OBJECTIVES**
- To explain why patients of African descent with kidney failure are at greater risk for heart disease.
- To describe unique nutritional interventions for patients with kidney disease.
- To describe therapeutic interventions to address kidney failure.

**FINANCIAL DISCLOSURE**
There are no financial disclosures.
Disclosures:

There are no financial disclosures.
HDL Metabolism and Reverse Cholesterol Transport

ABC1 = ATP-binding cassette protein 1; A-I = apolipoprotein A-I; CE = cholesteryl ester; FC = free cholesterol; LCAT = lecithin:cholesterol acyltransferase; SR-BI = scavenger receptor class BI

Functions and properties of HDL

Navab, M. et al. (2011) HDL and cardiovascular disease: atherogenic and atheroprotective mechanisms
Nat. Rev. Cardiol. doi:10.1038/nrcardio.2010.222
**Causes of Death**

**Dialysis Patients 1993-1995**
- Cerebrovascular: 6%
- Other Known: 19%
- Unknown: 7%
- Infection: 15%
- Malignancy: 4%
- Cardiac: 49%

**General Population 1993**
- Other: 23%
- Unintentional: 4%
- Infection: 5%
- COPD: 4%
- Cerebrovascular: 7%
- Malignancy: 23%
- Cardiac: 34%

Adapted from Sarrak MJ, Levey AS. *Seminars in Dialysis* 1999;2:69-76

**Comparison of CV mortality**

Annual mortality (%)

Age (years)

25-34 35-44 45-54 55-64 65-74 75-84 >85

Dialysis
- GP Male
- GP Female
- GP Black
- GP White
- Dialysis Male
- Dialysis Female
- Dialysis Black
- Dialysis White

Sarnak, 2000
Protein Energy Wasting (P.E.W.)

- Protein and calorie intake insufficient to meet cellular demand for growth, maintenance, and function.

- P.E.W, Inflammation, and CVD are predictors of Mortality in Pts W/ESRD.
STABLE ESRD
Myeloperoxidase/H$_2$O$_2$

- Carbamylation
- Oxidation
- Glycatyion

protein modification
protein modification (i.e., Nitration)

VEGFR-2
Endothelial Injury
CVD

IR

AGE protein modification
RAGE → NFκB

inflammatory cytokines (IL6, TNF α)
SIRP-α

Breakfast of Champions
POST TRANSLATIONAL PROTEIN MODIFICATION

ESRD CVD Risk
Post Translation Protein Modification
(LDL, HDL)
GLYCATION
Serum AGEs increase with renal failure Diabetic patients
Carboxymethyllysine Levels and GFR
Nondiabetic patients
OXIDATION

ROS: Mitochondria dysfunc, AGE, ESRD

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₂</td>
<td>Oxygen</td>
</tr>
<tr>
<td>·O₂⁻</td>
<td>Superoxide anion</td>
</tr>
<tr>
<td>·O₂⁻²</td>
<td>Peroxide</td>
</tr>
<tr>
<td>H₂O₂</td>
<td>Hydrogen Peroxide</td>
</tr>
<tr>
<td>·OH</td>
<td>Hydroxyl radical</td>
</tr>
<tr>
<td>OH⁻</td>
<td>Hydroxyl ion</td>
</tr>
</tbody>
</table>
Inflammation alters HDL composition and function

Oxidized LDL contributes to atherogenesis
CARBAMYLATION

Scheme of protein carbamylation.

Robert A. Koeth et al. JASN 2013;24:853-861
Carbamylation of Mitochondrial Proteins in CKD:

• Down regulation of mitochon ENPP-1

• Suppressed PPI (Pyrophosphate) levels

• PPI is a potent inhibitor of ectopic mineralization.

Carbamylation levels of high-density lipoprotein (HDL) in patients with end-stage renal disease (ESRD) and healthy control subjects.

Jia Teng Sun et al. Am J Physiol Renal Physiol 2016;310:F511-F517

©2016 by American Physiological Society
Inhibition of LDL Oxidation by HDL: *Role of Paraoxonase*

- Paraoxonase is transported in plasma as a component of HDL.
- Paraoxonase is known to inhibit the oxidative modification of LDL.
- Thus, the presence of paraoxonase in HDL may accounts for the antioxidant properties of this lipoprotein.
Relationship between the HDL carbamylation level and paraoxonase 1 (PON1) activity in patients with ESRD. A: HDL-associated PON1 activity in ESRD patients and healthy control subjects.

![Graph showing HDL-associated PON1 activity comparison between health and ESRD patients](image)

Jia Teng Sun et al. Am J Physiol Renal Physiol 2016;310:F511-F517

©2016 by American Physiological Society

- Preserve endothelial function
- Promote cholesterol efflux
- Anti-oxidative, anti-inflammatory, and anti-thrombotic effects

Proatherogenic High Density Lipoprotein
Antioxid Redox Signal 14(10), 2337-2346 (2011)

- Atherosclerosis
- Vascular and endothelial cell instability
- Increased cardiovascular risk
ESRD: Macrophage Uptake of Modified Lipoproteins

**Diagram:**
- ABC = ATP Binding Cassette Transporter
- ACAT = acyl cholesteryl acyl transferase
- Apo = Apolipoprotein
- Cholesterol; CE = cholesterol ester
- LXR = Liver X receptor
- NPC = Niemann Pick Protein (late endosomal)
- Ox-LDL = Oxidized-LDL
- SRA1 = Scavenger receptor A1
- SREBP = Sterol regulating element binding protein
  - 27-HC = 27 hydroxy-cholesterol

**Text:**

**Foam Cell**
1. Uremia associated CVD is caused by multiple factors

2. Protein modification is a major factor of uremia associated CVD
What are possible Therapeutic Modalities?
<table>
<thead>
<tr>
<th>Trial</th>
<th>Statin</th>
<th>Effect (Fatal, nonFatal MI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aurora</td>
<td>Rosvasatin</td>
<td>NS</td>
</tr>
<tr>
<td>4D</td>
<td>Atorvastatin</td>
<td>NS</td>
</tr>
<tr>
<td>SHARP</td>
<td>Simva/Ezet</td>
<td>NS</td>
</tr>
</tbody>
</table>

Kidney Transplant
RISK FACTORS FOR ATHEROSCLEROSIS IN TRANSPLANT RECIPIENTS

- Cyclosporine
- Rapamycin
- Steroids
- Tacrolimus
- Hyperlipidemia
- Hyperhomocysteinemia
- Hypertension
- Diabetes mellitus
- Uremia
- Lipoprotein (a)
- Advanced glycosylation end products
- Recipient age
- Smoking
UCSF Artificial Kidney Project Tapped for Accelerated FDA Program

THANK-YOU

clinton.brown@downstate.edu
Purpose and Objectives

**PURPOSE**
To improve colon health and reduce the burden of preventable diseases.

**OBJECTIVES**
- Objective 1: To discuss the burden of colonic diseases including colorectal cancer
- Objective 2: To identify factors associated with colonic diseases
- Objective 3: To elucidate strategies to reduce the burden of colonic diseases including colorectal cancer

**FINANCIAL DISCLOSURE**
There are no financial disclosures.
Magnitude of the problem
True or False

• If we don’t have data, we don’t have the disease?
Inflammatory Bowel Disease

The incidence and prevalence of IBD are increasing throughout Latin America and the Caribbean.

Population-based epidemiology studies are needed to evaluate the increase in IBD in these regions.

Physicians in Latin America and the Caribbean should be aware that more patients will be presenting with IBD.
Increased awareness needed

- In a study involving 306 patients
  
  - The mean time between onset of symptoms and diagnosis was 28 months for Crohn’s disease
    - 37 months for patients with ileocolonic location,
    - 26 months for patients with ileum location and
    - 18 months for patients with colon location.

  - 19 months for ulcerative colitis.
    - 52 months for proctitis,
    - 12 months for left-sided colitis and
    - 12 months for extensive colitis

Late stage presentation for colorectal cancer too

- Martinique population-based cancer registry between 1993 and 2012
- 2230 cases of incident CRC
- 779 (89.6%) patients with stage information
  - 486/779 (62.4%) had stage III-IV at diagnosis
  - 285 (36.6%) patients with metastases at diagnosis (stage IV).

Global migration patterns

- CRC incidence variation across continents
  - Japanese in Hawaii in the 1960's

- Africans in Africa versus African Americans
  - They left malaria for heart disease and cancer 😞

- Changes in lifestyle and dietary patterns
  - “Western diet” in Asia

- Migrants develop similar risk of CRC as natives within the same generation.


Afro-Caribbeans vs. African-Americans

- Death records for New York City from 1988 through 1992

- Cancer mortality rate
  - Black men > White men (512.6 vs. 385.6 per 100,000 per year)
  - Black women = White women (270.8 vs. 270.6)
  - Southern-born black males > Northeast-born black males > Caribbean-born black males
    - 615.7 versus 419.1 versus 352.4
  - Caribbean-born males have the highest burden from prostate cancer

Afro-Caribbeans vs. African-Americans

• 3797 AA and AC patients undergoing first time screening colonoscopy in USA

• Adenoma prevalence
  – 29.5% in AAs and 29.0% in AC
  – (AOR: 1.02; 95% CI: 0.88-1.18, P = 0.751).

• Advanced colorectal neoplasia
  – (11.8% in AAs and 9.0% in AC
  – (AOR: 1.30, 95% CI 1.02-1.66, P = 0.034)


Clinical features

• Blood in the stool
• Fecal urgency
• Change in bowel habits (Diarrhea, Constipation)
• Unexplained weight loss
• Anemia
• Abdominal mass
• Abdominal pain and
• Asthenia.
Predisposition to CRC

• Hereditary
  – Familial Adenomatous Polyposis (FAP) ~ 1%
  – Lynch syndrome ~ 5%

• Inflammatory ~ 1%
  – Crohn’s disease
  – Ulcerative colitis

• Family History of CRC ~ 20%

• Sporadic CRC ~ 75%

Symptoms are warning signs

• All that bleeds is not hemorrhoid
Predisposition to Colorectal Cancer

- Majority of colorectal cancers are sporadic

- Sporadic = occurring in scattered, unpredictable instances

- Sporadic = Idiopathic

- Idiopathic = Makes you look like an idiot

Take your choice

Colon with polyps

Normal colon
No colon should be left behind!

A good question

- Does technological advancement increase or decrease healthcare disparities?
The technological and resources divide

- Surveillance, Epidemiology and End Results program (SEER) data
- \( n = 580,225 \) invasive cancers
- Non-amenable, partly amenable, and mostly amenable cancers
- As amenability increased, racial/ethnic differences in cancer survival increased for African Americans, American Indians/Native Alaskans, and Hispanics relative to Whites.


Early diagnosis is important!!!!

By early diagnosis and treatment
Screening modalities for CRC

What do we have to do?

• Screen baby screen!
• Screen baby screen!!
• Screen baby screen!!
• Screen baby screen!
• Screen baby screen!!
• Screen baby screen!!!
Interventions

• Patient level

• Provider level

• System level

Patient level

• Providing access is the first step
  – Health insurance (Solution)
  – Health insurance is necessary but not sufficient
  – CRC screening is not an emergency

• Combating fatalistic beliefs and fear
  – Education and integration (Solution)
    • Group education; one on one
    • Churches, community centers etc

Physician level

• Physician education
  – Increased screening recommendations to patients

• Electronic reminders
  – Reminds physicians to remind their patients

• Additional healthcare providers
  – Nurse practitioners and
  – Physician assistants
  – Reduce time pressure on physicians


Patient level

• Compliance to screening schedule
  – Returning FIT / FOBT cards
  – Diagnostic colonoscopy for positive FIT/FOBT/Sig
  – No shows for screening colonoscopy
  – Poor bowel preparation for colonoscopy

• Solutions
  – Patient reminders (phone calls, text messages etc)
  – Patient navigation services
    • Eliminate barriers (appointment, paperwork etc)
    • Reminder phone calls; Arrange transportation
    • Follow up of abnormal screening test

System level

- CME approved didactic sessions
  - Improvement: (OR=2.25; 95% CI:1.67-3.04)

- Multi-modal intervention consisting of checklists, chart reminders, and feedback of screening rates to clinic staff.
  - Improvement: OR=2.56; 95% CI:1.65-4.01

- Financial bonuses as incentives to providers
  - Improvement: 23.4% to 26.4%, P <0.01
  - Yes. Year end bonus is great!!!!

Lane DS, et al Med Care. 2008;46(9 Suppl 1):S109–16

• Actions to reduce CRC burden
The key issue

- Family history of CRC information
  - Present versus absent
  - Role of family history in CRC screening recommendations (12 yrs (FAP); 20 yrs (HNPCC); 40 yrs (FDR; 2 x SDR))
  - Lack of information on family health history
    - No family history of CRC = unknown family history

Smoking

- Overall evidence suggest an increased risk of colorectal adenoma and colorectal cancer among smokers: RR ~ 1.20
  - Relatively long lag period ~ 20yrs
  - May be dose dependent
- It is unclear if smoking cessation will reverse the risk of CRC
- Stopping smoking is still better for you 😊
Aspirin and Non Steroidal Anti-Inflammatory Drugs Use

- NSAIDs trials reduced adenoma recurrence
  - APC (Celecoxib)
  - PreSap (Celecoxib)
  - APPROVe (Rofecoxib)
- But increased cardiovascular events
- USPSTF now recommends
  - Low dose aspirin may be ok if 50-59yrs + 10% CVD risk in 10 years, take for at least 10 years
  - Individualize for those aged 60 to 69 years who have a 10% or greater 10-year CVD risk


Physical activities

- Evidence suggest a reduced risk of CRC and adenoma among those who are physically active and increased risk among sedentary individuals.
  - 27% reduction
  - Both proximal and distal colon

Obesity

- Overall evidence suggest an increased risk of CRC with obesity

- By BMI
  - RR = 1.33; 95% CI: 1.25-1.42

- By waist circumference
  - RR = 1.45; 95% CI: 1.33-1.60.

Meat Consumption

- Evidence suggest that consumption of red meat is associated with increased risk of CRC
  - 28% to 35% for red meat
  - 20% to 49% for processed meat
- Processed meat = class 1 and red meat = class 2A carcinogen by IARC


Alcohol Consumption

- Evidence suggest that consumption of alcohol is associated with increased risk of CRC
  - Up to 50% increased risk
  - Dose dependent
  - Worse with beer
- ? Benefit with red wine

Blot WJ. Cancer Res. 1992 Apr 1;52(7 Suppl):2119s-2123s
Summary

• We need better awareness of gastroenterological diseases and avoid risk factors
• We have to provide access to the healthcare services we are trying to deliver (screening)
• We have to encourage utilization of the services
• We have to compensate those delivering the services adequately
• Invest in the patient, the provider and the system

Fruits and Vegetables

• Evidence suggest that high consumption of fruits and vegetables is associated with reduced risk of CRC
  - RR = 0.80; 95%CI: 0.70-0.90

Yes! We can cross the finish line

Thank you for your attention

Questions are guaranteed in life; Answers aren't.
Contact Information

**Name:** Adeyinka O. Laiyemo, MD, MPH, FACG, AGAF

**Title:** Associate Professor of Medicine

**Organization:** Howard University, Washington DC

**Email:** adeyinka.laiyemo@howard.edu

**Phone:** (202) 865-6100 main  
(202) 865-7186 Direct  
(202) 865-4607 Fax
Emergency Radiology Cases

Berndt P Schmit, MD MBOE
Associate Professor of Radiology
Section Chief Emergency Radiology
University of Arizona

Disclosures

- Founder of Humanitarian Radiology Development Corps (501c3)
- Consultant with Radiology Business Solutions
- Co-founder of SonoArmour
- Advisor for VistaScan
- No financial conflicts
Objectives/Goals

- To raise awareness of use of CT and MRI in Emergency Radiology
- To raise awareness of diagnostic imaging capability for trauma and acutely ill patients.

Case 1: The CT Pan Scan
25 M, Hit by car at 60mph. Head struck windshield. Launched 30 feet.
Case 1: *The CT Pan Scan*

25 M, Hit by car at 60mph. Head struck windshield. Launched 30 feet.

Case 2:

20 F, chronic vague abdominal pain, worse with stress

Inflamed Meckle’s diverticulum
Case 2:
20 F, chronic vague abdominal pain, worse with stress
Normal Appendix & terminal ileum

Case 3:
50 y/o Male, Car crash, driver
Case 3:  
50 M, Car crash, driver

T9-10 slight distraction  
Low rectal tone before intubation  
Complex acetabular fracture dislocation

---

Case 3:  
50 M, Car crash, driver

T9-T10 disc and ligament disruption  
Normal spinal cord
Case 4:
65 F, Rear-ended MVC.

Type 2-3 dens fracture

Case 4:
65 F, Rear-ended MVC.

Diffuse axonal injury
Case 5:
42 M, ETOH Altered mental status. Facial trauma.

Thin right subdural bleed
Focal Subarachnoid right

Windowing is Key

Case 6:
33 F, Chronic bilateral draining wounds.
Injects arms so no track marks.
Childhood history of opioids after foot surgery.

Acute & Chronic Osteomyelitis
Case 7:
56 M, Found at bottom of 6 stairs.

Acute subarachnoid, subdural, parenchymal bleeds
Severe mass effect

8/17/19

Case 7:
56 M, Found at bottom of 6 stairs.

Developing encephalomalacia
Craniotomy to relieve mass effect

8/19/19

9/18/19

10/17/19
Case 7:
56 M, Found at bottom of 6 stairs,
In chronic rehabilitation facility, non-mobile

Paradoxic brain herniation, (Sinking skin flap syndrome)

Sinking Skin Flap Syndrome

- Rare neurosurgical complication after craniotomy to relieve pressure after trauma
- Usually chronic complication
  - Due to higher external pressure compared to intracranial pressure
  - Reverse herniation may have grave consequences
- Immediate treatment includes:
  - Trendelenburg
  - Cessation of CSF drain
  - Blood patch for CSF leak.
- Definitive treatment is Cranioplasty
Case 7:
56 y/o Male Found at bottom of 6 stairs
Disuse osteoporosis
Not infection or infiltration

Case 8:
25 F pregnant pelvic pain
Heterotopic pregnancy
IUP at 7W 4d and right ovary yolk sac.
MRI showed same findings.
Proven at surgery.
Case 9:
49 M, RUQ pain.
Ultrasound showed Gallbladder wall thickening, negative Murphy sign, common bile duct normal at 4.5mm. No calculi.

Equivocal findings

Management?

Differential for Gall Bladder Wall Thickening

- Gall bladder inflammation
- Systemic illness
  - Low protein state
- Chronic liver disease
- Adjacent inflammation
Case 9:
49 M, RUQ pain. CT scan 1 month later.

- Acute Cholecystitis
- Wall thickening & edema
- New CBD dilation
- Possible stone

Case 10:
20 F, Epigastric pain, nausea, vomiting.

- Pedicle from left adnexa
- Mature Cystic Teratoma
Case 11:
89 M, Ground level fall, altered mental status for 10 days.

Flair, Diffusion, MRV post Contrast, T1 Post Contrast

Dural venous sinus thrombosis
Subarachnoid & parenchymal bleed

Diffusion, Flair, MRV post Contrast, T1 Post Contrast
Case 12:
77 M, Now severe pain, eye infection
9 mo s/p Trabeculoplasty for advanced Open Angle Glaucoma

Endophthalmitis
Anterior chamber grew out enterococcus
Case 13:
59 F, C6 Paraplegia, Fever, WBC, Decubitus ulcers
Acute & Chronic Osteomyelitis
Normal appendix

Case 14:
6 F, Intermittent anterior neck mass for 5 months. Responds to antibiotics.
Infected thyroglossal duct cyst
Case 15:
75 M, Acute Mental Status Change

2/1/2020

2/14/2020

Chronic subdural bleed
New acute subdural with marked mass effect

Case 16:
82 M. Epigastric pain, nausea, vomiting. GERD, Smoker.

Gastric adenocarcinoma \textit{linitis plastica}
Gastric wall up thickening up to 3.8cm
No ulceration
Uncinate process pancreatitis
Case 17:
77 M, Mass, abdominal pain, dropping Hematocrit.
Previous left gastric artery aneurysm embolization

Large Hematoma
Possible active bleeding

Thank You!

bpschmit12@gmail.com
NOAH-NY
Caracol Clinic, Haiti
Ultrasound Training, March 2019
Purpose and Objectives

**PURPOSE**

To understand the relationship between ethnic concordance, physician/patient communication and adherence.

**OBJECTIVES**

- Showcase the impact of healthcare disparities in the United States.
- Highlight several factors that drive these disparities.
- Review the current literature of Ethnic Concordance as it relates to patient adherence.
- Provide an overview of an experiment seeking to understand this problem more closely.

**FINANCIAL DISCLOSURE**

There are no financial disclosures.
The American Healthcare Crisis

United States spends close to twice as much as 10 similarly high income countries despite covering a lower proportion of citizens with lower quality levels and poorer health outcomes. Nonetheless, there is a similar number of physicians and patient utilization rates. (Papanicolas et. al, 2018)

<table>
<thead>
<tr>
<th>Country</th>
<th>Spending (2003-2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$6,035</td>
</tr>
<tr>
<td>Switzerland</td>
<td>$5,267</td>
</tr>
<tr>
<td>Germany</td>
<td>$5,228</td>
</tr>
<tr>
<td>Sweden</td>
<td>$4,407</td>
</tr>
<tr>
<td>France</td>
<td>$4,150</td>
</tr>
<tr>
<td>Japan</td>
<td>$4,003</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>$3,153</td>
</tr>
<tr>
<td>Spain</td>
<td>$1,369</td>
</tr>
<tr>
<td>Russia</td>
<td>$1,052</td>
</tr>
<tr>
<td>Mexico</td>
<td>$731</td>
</tr>
<tr>
<td>China</td>
<td>$267</td>
</tr>
</tbody>
</table>

OECD Average: $3,814

Disparities in Healthcare Outcomes

- $1 Trillion – Savings in indirect costs associated with illness and premature death from 2003-2006

Source: LaVeist, Gaskin & Richard, 2011
“Racism is a public health crisis” – NYC Department of Health

"Racism is a public health crisis. The murder of George Floyd at the hands of police officers is part of the system of racism that permits police brutality, unjust policing, and widespread violence. In New York City, Black and Brown communities face the disproportionate impact of 2019 COVID-19 pandemic, on top of the trauma of state sanctioned violence. The NYC Department of Health and Mental Hygiene is committed to addressing structural racism within our own institution and addressing racism as a social determinant of health as part of our mission to protect the health of New Yorkers. To model lasting change, we call on our other city agencies to address structural racism in their own organizations. Join us in this stand against injustice to do better in service of Black, Brown and all New Yorkers."

Healthfirst: Areas of focus for Social Determinants of Health (SDoH)

- “The conditions in which people are born, grow, live, learn, work, play, worship, and age are the underlying cause of today’s health challenges.” - Healthy People 2020

Note: Also deployed NowPow, an SDoH needs & Community Services matching and referral platform
Patient/Physician Ethnic Concordance Studies


- Paired African-American men with both white and African-American physicians.
- Each patient was offered a range of preventive care services in increasing degrees of invasiveness.
- Findings: African-American patients with African-American physicians were more likely to agree to the preventive care services offered vs. those offered by white physicians.
- Additional findings: African-American physicians had higher levels of “effort” for their African-American patients.
What About Implicit Racial Bias?

“Algorithm flags patients who might need extra care based on how much they will cost the system in the future”

“Race was not a variable, however relatively healthy white patients ended up being selected over sicker black patients...” do to spending differences.

Ethnic Concordance = No Significant Differences

H1: Patient-centered communications leads to high quality care to patients.

Research Question: Does Racial/Ethnic Concordance help?

Sample Size
Racial/Ethnic Concordant (n = 55)
Racial/Ethnic Discordant (n = 36)

Results: Three separate mixed linear regression analyses were conducted.
(a) β = .20, p = .12
(b) β = 0.12, p = .39
(c) β = −0.05, p = .75

Findings: No Statistical Significance
Most resident physicians in our study had pro-white/anti-black bias on both the Adult Race IAT and Child Race IAT, which reflects other research on implicit bias on the general population.

Children’s Hospital of Philadelphia administered both Child/Adult Race Implicit Association Tests (IATs) to 91 resident physicians in a large pediatric ED in western Pennsylvania.


H1: Physician Implicit Bias
H2: Physician Communication
H3: Patient Trust
H4: Ethnic Concordance

Ethnic Concordance + Bias = Significant Differences
Physician Communication

H2: Effective physician communication including both verbal and nonverbal messaging to patients will lead to an increase in patient trust.

- Effective physician-patient communication is linked empirically to outcomes of care including patient satisfaction, health status, recall of information, and adherence (Engel, 1992).

- This includes verbal and nonverbal communication measured by accessing (1) effective questioning, (2) transmission of information, (3) expression of empathy and concern, and (4) participation and participatory decision making (Zolnierek, 2009).

- Patient motivations and complexity of treatment that could involve lifestyle changes can be influenced by physician communication (Martin, 2005).

- It’s important for physicians to understand the “degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (US DHHS, 2000).

Physician Implicit Bias

H1: Implicit bias, consciously or unconsciously, negatively impacts the ability for physicians to effectively communicate with their patients.

- Variations in patient satisfaction scores regarding clinical interactions of black patients were determined by the race of the physician and that physician’s perception of the race of their patient. (Penner, Dovidio, Manning, Albrecht, van Ryn, 2018)

- At a Veteran Affair’s Medical hospital, minority patients “did less to prompt doctors for information”, which led to physicians providing less information and visits being 40% shorter when paired with a white physician. (Gordon et al., 2006).

- Low income black patients seeing white physicians were less likely to adhere to their instructions. Additionally, higher levels of physician implicit bias led to lower patient adherence rates. (Hagiwara, 2013)
**Ethnic Concordance**

**H4:** Ethnic concordance between patients and physicians serves as a moderator to patient trust and will positively influence the relationship.

- Ethnic Concordance is defined as the degree of patient and physician similarity or agreement across a given dimension. Differences in gender, race, socioeconomic status, education, expectations, beliefs, and perceptions can impact health care quality. (Thornton 2011).

- Respondents of each racial and ethnic group reported the highest level of satisfaction if they were race concordant. Moreover, all respondents reported greater satisfaction with physicians from their own race. (LaVeist & Nuru-Jeter, 2002).

- Patient perception of similarities with their physician had strong correlation to patient satisfaction and adherence. However, perceived racial similarities were not related to health outcomes (Street, 2008).
The Experiment: Measures

- Patient Communication: Medical Communication Competence Scale (Cegala, Coleman, Turner, 1998).
- Ethnic Concordance: Personal and Ethnic Perceived Similarities Measures (Street, O’Malley, Cooper, Haidet, 2008).
- Patient Adherence: Intent to Adhere Questionnaire*

The Experiment: Expected Results

“Patient adherence will be the highest where ethnic concordance between patient and physicians are the highest and implicit bias with the physician is the lowest; thus more preventive care services will be rendered regardless of the level of invasiveness. This is due to higher levels of patient trust and effective physician communication.”

- Patient Adherence = β₀ + β₁ Patient Trust + ε
- Patient Trust = β₀ + β₁ Physician Communication + β₂ Physician Communication * Ethnic Concordance + ε
- Physician Communication = β₀ + β₁ Physician Implicit Bias + ε
Expected Contributions

- Extend life expectancy for African American males by increasing their exposure to both ethnically concordant physicians and other physicians with low/no implicit bias.
- Improve deliberate physician recruitment campaigns in areas with dense minority populations to better meet the needs of the patient populations.
- Lower the cost of healthcare in America improving efficiency and quality.
- Build on Dr. Theodis Thompson’s Social Accessibility Hypothesis, that contends that physicians find it difficult to effectively communicate with their patients, especially when there are cultural differences. On that premise, the psychosocial accessibility problem of blacks obtaining healthcare would be greatly alleviated through the existence of an appropriate number of black physicians to meet the black demand for healthcare services [Thompson, 1974].

Contact Information

Errol L. Pierre
Senior Vice President
State Programs
Healthfirst
epierre@healthfirst.org
(212) 401-8870
NHI Bahamas: Transforming Primary Healthcare in The Bahamas on its Journey to Universal Health Coverage

Dr. Monique Thompson CPHQ, NMD, BSc
Manager, Healthcare Quality & Wellness Development
The National Health Insurance Authority

Purpose and Objectives

PURPOSE
To inform the audience of the advancements The Bahamas has made in Primary Healthcare as it implements Universal Healthcare (UHC).

OBJECTIVES
- Explain the National Health Insurance Authority’s approach to Universal Health Coverage
- Describe elements of the adopted quality framework and the consequences to the quality of healthcare in The Bahamas resulting from its implementation

FINANCIAL DISCLOSURE
There are no financial disclosures.
1 The National Health Insurance Authority (NHIA) Overview: Understanding Universal Health Coverage (UHC) in The Bahamas

2 The Challenges: A Siloed Primary Care System

3 The Call: Pan-American Health Organization/World Health Organization (PAHO/WHO) Quality Framework

4 The Response in Making a Difference

5 The Way Forward

6 Q & A

The National Health Insurance Authority

- National Health Insurance Bahamas ("NHI Bahamas") aims to ensure that all Bahamians and legal residents - no matter income, age, island of residence or current health status - can receive quality health care.

- The National Health Insurance Authority (NHIA) has been established to oversee the implementation of NHI Bahamas.
NHI Bahamas Program Overview

Enrolment Growth
NHI currently has just over 100,000 Bahamians enrolled in the program representing about 23% of the uninsured population.

High Patient Satisfaction
96% of those enrolled in NHI are satisfied with the service they are receiving from the program.

Expansive Provider Network
Currently, there are 90 Physicians across ~56 provider facilities as well as 12 provider labs across 6 islands.

Diverse Demographics
NHI currently enrolls Bahamians from more than 17 islands including 4,200 Bahamians under the age of 5 and nearly 10,000 over the age of 65.

Reducing The Burden on the Public System
New Providence Clinics Visits are down 10% from 2016-2018 since the NHI program was introduced.

Low Cost per Patient
NHI is currently delivering services at a cost of ~$217 per patient.

Digitally Enabled Care
Launched an Electronic Health Record which is currently active for ~80,000 patients.

Transparency and Accountability
NHI annual report accounts for each dollar spent, building accountability through service agreements and quality care standards.

The Standard Health Benefit (SHB)

The SHB

Primary Care
Coverage

- Primary Care Physician
  - Covers general physician visits.
- Pediatric and Maternity Care
  - Maternity and pediatric care bundles.
- Health Education
  - Healthy living advice, wellness programming, and wellness education.

Diagnostic imaging
- Includes X-rays and ultrasounds.

Cancer Screening Programs and Early Intervention
- Includes mammography, PSA, colonoscopy, pap smear.

Lab Tests
- Includes essential diagnostic lab tests.

Implementation Plan

- Mandating Primary Care Coverage
- Engaging in Public Private Partnerships
- Developing Universal Fee Schedules
- Implemented in a phased approach as existing policies renew.
The Challenges
A Siloed Primary Care System
Why is this a Problem?

1. Inefficient Resource Allocation
2. Disconnected Care Delivery
3. No Universal Standard of Service
4. Poor Quality Control
5. Lack of Innovation

The Current State Primary Care Patient Flow

1. National Health Insurance
   - Standard Health Benefit
   - Primary Care Services
     - Electronic EHR
     - Quality Improvement Program

2. Department of Public Health
   - Various Primary Care and Public Health Services
   - Public Health Programs
     - Paper Based Record
     - Quality Improvement Program

3. Public Hospitals Authority
   - Various Primary Care and Public Health Services
   - PMH Digital Records
     - Quality Improvement Program

4. Private Insurance
   - Services Depending on Coverage
     - Various

The Current System is Broken

The Call: PAHO/WHO Quality Framework

Explore data sharing opportunities with hospital facilities within the Public Hospital Authority, with a focus on rational use of resources.

1. Universal Primary Care Electronic Record
2. Telemedicine
3. The National Healthcare Communications Forum

Development of a questionnaire to request provider data

Key Performance Indicators developed by an expert panel and built into the EHR.

1. Renewed inspection process for Primary Healthcare facilities implemented;
2. Laboratories and DI facilities underway

Strengthen the health care facilities inspection and certification process.

Development of a survey for NHI beneficiaries

1. 2 Cycles of the Patient Satisfaction Survey
2. Provider Satisfaction Survey
3. People Centered Care Approach to Healthcare
The Response in Making a Difference

Universal Primary Care Electronic System

We are Modernizing Care Delivery

Understanding the Power of Real-Time Data and Connectivity

All NHI Primary Care providers will be required to use the NHI EHR solution.

<table>
<thead>
<tr>
<th>Vision</th>
<th>Benefits</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHI EHR Solution</td>
<td>A Singular Inter-connected Electronic Health Record</td>
<td>Hospital Information Systems</td>
</tr>
<tr>
<td>NHI Primary Care Provider</td>
<td>Real Time-Data</td>
<td>Lab Information Systems</td>
</tr>
<tr>
<td>Health Information Exchange</td>
<td>Quality Standards &amp; Reporting</td>
<td>Other Health Information Management Systems</td>
</tr>
<tr>
<td>Private PCP delivering SHB services</td>
<td>Eliminating Duplication &amp; Reducing Costs</td>
<td>Telehealth Pilot: March 2020</td>
</tr>
<tr>
<td>NHI Specialist Non-Hospital Clinic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
More Bahamians are using NHI according to new survey

WHERE IS NHI TODAY?
Over 65,000 Bahamians
are on the NHI service through all public facilities
and 8 public facilities across.

20%
NHI is significantly reducing the burden on the public health care system.

KEY FINDINGS
90%
of all Bahamians beneficiaries were overall satisfied with quality of service. The same satisfaction level as 2018.

90%
of all Bahamians beneficiaries feel that their doctor is easy to reach.

46%
of all Bahamians beneficiaries were able to utilize services within 7 days of assessment.

47%
Over 47% of beneficiaries initiated that wait times were 32 mins or less when seeing their doctor.

2019 PROVIDER FEEDBACK SURVEY

The National Health Insurance Authority conducted its first Provider Feedback Survey during February of 2019. This was done in an effort to:

- Gain an understanding of our Providers’ experience with NHI in Bahamas,
- Assess Providers’ perspective on acquiring an Electronic Health Record (EHR) system, and determine ways in which either the Authority or the NHI Bahamas program can improve.

EHR
100%
of Providers believe that they will benefit from an EHR, with 68% saying that implementing an EHR at their facility can be done. 34% of Providers stated that an EHR is ‘very important’ to their work.

SATISFACTION
92%
of Providers are satisfied or very satisfied with NHI.

OUTLOOK
92%
of Providers feel positive about the future of NHI in Bahamas, and 96% of Providers say they would recommend other physicians to join NHI Bahamas.

HEALTH & WELLNESS
90%
of Providers agree that implementing an effective wellness program is necessary to improve the health benefits of NHI beneficiaries.
What Does it All Mean for Healthcare in The Bahamas?

Putting it all together.

It Means the Primary Care System Benefits!

- Every Bahamian will have **Access to a Primary Care Provider without Co-Pays or Deductibles**
- Every Bahamian will have a **Digitally Enabled, Singular Electronic Health Record**
- Reduced Burden on Hospitals and a shift towards **Preventative Care**
- Improved **Quality Healthcare of Primary Care Delivery**
- **Saves the Government more than $67.9M** in operational expenditure over 5 years
- **Funding Follows the Patient** and promotes competition
- Will be a platform for **increasing revenue collection** in the public sector
- Maintains the path to **Universal Health Coverage**

**No Additional Taxation is Required**
The Way Forward

Summary

✓ **UHC is possible** once it is adapted to a country’s fiscal/economic, cultural, social and operational climate – one size does not fit all.

✓ **UHC is a journey – not a destination** – that requires consistent governmental will, buy-in, and support.

✓ **Prioritized elements** of the adopted quality framework included:
  - Implementation of an EHR with KPIs
  - Rational use of resources to Connect Care Delivery
  - Establishment of a Universal Standard of Service, inclusive of Improved Quality Control
  - Ensuring the Satisfaction of Key Stakeholders

✓ **Continue to ensure, monitor and improve quality** Primary Health Care Services and build participants trust and confidence in the program
Contact Information

Name: Dr. Monique Thompson
Title: Manager, Healthcare Quality & Wellness Development
Organization: The National Health Insurance Authority
Email: moniquethompson@nhibahamas.gov.bs
Phone: (O) 1-242-396-8507
         (M) 1-242-357-3832
Cross Cultural Issues in Behavioral Health Disorders in the Caribbean Population

Georges J. Casimir, MD
Clinical Assistant Professor
SUNY Downstate Health Sciences University
Brooklyn, New York
gjcrvc@optonline.net

Financial Disclosure

• I do not have any financial disclosures to report
Objectives

• To Identify and Discuss Behavioral Health Disorders in the Caribbean Populations
• To Discuss Different Clinical Symptomatology and Treatment Approaches
• To Familiarize the Audience with Unique Aspects of the Culture of the Caribbean Populations

Purpose

• To Understand the Specific Cultural Issues that will Lead to Cultural Competence, Maximize Treatment Outcomes, and Improve Equity and Access to Care
• Concepts of Health and Illness
• Concepts of Mental Health and Mental Illness
• External vs Internal Causes
• Mystical, Magical, and Animistic Causal Factors

Explanatory Models of Health

• Psychoses
• Mood Disorders
• Substance Use Disorders
• Cognitive Disorders

Clinical Psychiatric Disorders
• Universality of Schizophrenic Symptoms
• Specific Symptoms in the Caribbean populations
• Suspiciousness vs Paranoid Ideation
• Treatment Issues

Cultural Aspects of Psychoses

• Universal SIG E CAPS
• Specific Symptoms of Depressive Disorders
• Presence of Psychotic Symptoms
• Constancy of Somatic Symptoms
• Other Atypical Presentations
• Treatment Issues

Cultural Aspects of Mood Disorders
• Caribbean Region as Travel Route
• Types of Substances: Plants vs Chemicals
• Self-Medication
• Clinical Consequences of Substance Use
• Treatment Issues

Cultural Aspects of Substance Use Disorders

• Senescence vs Dementia
• Predisposing Factors
• Vascular vs Alzheimer’s Dementia
• Access to Specialized Diagnostic & Treatment Centers
• Other Treatment Issues

Cultural Aspects of Cognitive Disorders
• Choice of Treatment
• Locus of Treatment
• Availability, Access and Equity
• Long-term Care Issues
• Burden of Care

Other Treatment Issues

• Assimilation and Acculturation
• Heterogeneity of Populations
• Language and Communication
• Religion and Spirituality
• Family Structure

Special Cultural Issues
• Power of Attorney/Guardianship /Healthcare Proxy
• Disposition of Assets
• Elder Care Laws
• Abuse and Neglect
• End of Life Decisions

Legal, Ethical, and Financial Issues

• Are You Out of Your Mind?
• Are You Crazy?
• Are You Mad?
• Ou Anraje
Thank You

Georges J. Casimir, MD
gjcrvc@optonline.net

Questions, Comments, Concerns?
COVID-19 vaccine Trial at Howard

Siham M. Mahgoub, MD

Medical Director Center for Infectious Disease & Management Research (CIDMAR)

Howard University College of Medicine
Howard University Hospital

I have no financial disclosures.
Objectives

- Operation WARP speed
- Types of vaccines
- How do vaccines work
- Phases of clinical trial
- Novavax vaccine trial at Howard University
Most coronaviruses encode only one large surface protein, the spike protein, which is responsible for receptor binding and membrane fusion.

SARS-CoV-2 (and SARS-CoV), the spike protein binds to angiotensin-converting enzyme 2 (ACE2) on host cells and is then endocytosed.

This is followed by fusion of viral and endosomal membranes and release of the viral genome into the cytoplasm.

Antibodies that bind to the spike protein, especially to its receptor-binding domain (RBD), prevent its attachment to the host cell and neutralize the virus.

Based on this knowledge, and information gained from preclinical studies with SARS-CoV and MERS-CoV, the spike protein was identified as an antigenic target for the development of a vaccine against SARS-CoV-2 at a very early stage.

Data from the preclinical development of vaccine candidates for SARS-CoV and MERS-CoV enabled the initial step of exploratory vaccine design to be omitted, saving a considerable amount of time.

Who's working on Operation Warp Speed?

OWS is a partnership among components of

- Department of Health and Human Services (HHS)
- Centers for Disease Control and Prevention (CDC)
- National Institutes of Health (NIH)
- Biomedical Advanced Research and Development Authority (BARDA)
- Department of Defense (DoD). OWS engages with private firms and other federal agencies, including the Department of Agriculture, the Department of Energy, and the Department of Veterans Affairs.

It will coordinate existing HHS-wide efforts, including the NIH's Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) partnership, NIH's Rapid Acceleration of Diagnostics (RADx) initiative, and work by BARDA.
How is Operation Warp Speed being funded?

- Congress has directed almost $10 billion to this effort through supplemental funding, including the CARES Act.
- Congress has also appropriated other flexible funding.
- The almost $10 billion specifically directed includes more than $6.5 billion designated for countermeasure development through BARDA and $3 billion for NIH research.

What’s the plan and what’s happened so far?

**Development**
- To accelerate development while maintaining standards for safety and efficacy
- OWS has been selecting the most promising countermeasure candidates and providing coordinated government support.

**Important**

**Protocols for the demonstration of safety and efficacy are being aligned**
- Allows the trials to proceed more quickly
- The protocols for the trials will be overseen by the federal government, as opposed to traditional public-private partnerships, in which pharmaceutical companies decide on their own protocols.
- Rather than eliminating steps from traditional development timelines, steps will proceed simultaneously, such as starting manufacturing of the vaccine at industrial scale well before the demonstration of vaccine efficacy and safety as happens normally.
- This increases the financial risk, but not the product risk.
Ethical principles-CDC
ACIP is setting ethical principles to guide their decision-making process on who to recommend COVID-19 vaccines for if supply is limited.

Early discussions have focused on the following five principles:

- **Maximize benefits and minimize harms** — Respect and care for people using the best available data to promote public health and minimize death and serious disease.
- **Equity** — Decrease health disparities and make sure everyone has a fair and just opportunity to be as healthy as possible.
- **Justice** — Treat affected groups, populations, and communities fairly. Remove unfair, unjust, and avoidable barriers to good health and well-being.
- **Fairness** — Give everyone in a priority group an equal chance to get COVID-19 vaccination.
- **Transparency** — Make a decision that is clear, understandable, and open for review. Allow and seek public participation in the creation and review of the decision processes.

Groups considered for early vaccination if supply is limited CDC
ACIP is considering four groups to possibly recommend COVID-19 vaccination for if supply is limited:

- Healthcare personnel
- Workers in essential and critical industries
- People at high risk for severe COVID-19 disease due to underlying medical conditions
- People 65 years and older
CDC is making coronavirus disease 2019 (COVID-19) vaccination recommendations for the United States based on input from the Advisory Committee on Immunization Practices (ACIP). ACIP is a federal advisory committee made up of medical and public health experts who develop recommendations on the use of vaccines in the U.S. public. ACIP holds regular meetings, which are open to the public and provide opportunity for public comment.
Safety
Since the pandemic began, ACIP has been holding special meetings to review U.S. data on COVID-19 and the vaccines in development to help prevent it.

Before making recommendations, ACIP plans to review all available clinical trial information, including descriptions of

- Who is receiving each candidate vaccine (age, race, ethnicity, underlying medical conditions)
- How different groups respond to the vaccine
- Side effects experienced

If the Food and Drug Administration (FDA) authorizes or approves a COVID-19 vaccine
- ACIP will quickly hold a meeting to review all available data about that vaccine.
- From these data, ACIP will then vote on whether to recommend the vaccine and, if so, who should receive it
- Included in ACIP’s recommendations will be guidance on who should receive COVID-19 vaccines if supply is limited.
- Recommendations must go to the director of CDC for approval before becoming official CDC policy.

COVID-19 Vaccine Safety and Development
Currently, clinical trials are evaluating investigational COVID-19 vaccines in many thousands of study participants to generate scientific data regarding safety and efficacy.

If FDA determines a vaccine meets required safety and effectiveness standards, FDA may permit the vaccine to be distributed and used in the United States under an EUA or licensure (approved status).

After FDA makes its determination, the Advisory Committee on Immunization Practices (ACIP) will review available data before making vaccine recommendations to CDC.

Ensuring the Safety of COVID-19 Vaccines in the...
COVID-19 Vaccine Safety and Development

After a COVID-19 vaccine is authorized or approved for use, CDC, FDA, and other federal partners will use multiple existing, robust systems and data sources to conduct ongoing safety monitoring.

VAERS
The national system that collects reports of adverse events that happen after vaccination. Reports can be submitted from healthcare providers, vaccine manufacturers, and the public. Reports of adverse events that are unexpected, appear to happen more often than expected, or have unusual patterns are followed up with specific studies.

Enhanced COVID-19 Vaccine Safety Monitoring

CDC is also working to expand COVID-19 vaccine safety surveillance through new systems and additional information sources as well as by scaling up existing safety monitoring systems. This will give CDC and FDA the ability to evaluate vaccine safety and make sure COVID-19 vaccines are as safe as possible.

v-safe
A new voluntary, smartphone-based tool that uses text messaging and web surveys to provide personalized health check-ins for COVID-19 vaccine recipients. V-safe allows participants to report any side effects after COVID-19 vaccination to CDC in almost real time. It also gives them a convenient reminder to get their second COVID-19 vaccine dose if they need one.

National Healthcare Safety Network (NHSN)
An acute-care and long-term care facility monitoring system that will promote reporting to VAERS.
### Cheat Sheet: COVID-19 Vaccine Pipeline

The COVID-19 Vaccine pipeline 'Cheat Sheet' reflects front-runner candidates along with products with significant investments from the USG, GAVI, and the ACT-I-CAV Photo.

#### Pipeline Applicant(s)

- **AstraZeneca**
  - **Moderna**
  - **Pfizer / BioNTech**
  - **Janssen**
  - **Novavax**
  - **Moderna**

#### Vaccine Types

- **AstraZeneca**
  - Vaccine
- **Moderna**
  - mRNA vaccine
- **Pfizer / BioNTech**
  - mRNA vaccine
- **Janssen**
  - Viral vector
- **Novavax**
  - Full-length recombinant SARS-CoV-2 envelope nanoparticle vaccine

#### Status

- **Preclinical**
- **Phase 1 ongoing**
- **Phase 2 ongoing**
- **Phase 3 ongoing**
- **Approval**

#### Considerations

- **Immunogenicity**
- **Manufacturing/delivery**

#### Read more

- **Science**
- **Moderna Statement**
- **Nature**
- **Nature Reviews Immunology**
- **Fact Sheet**

---

#### Table: COVID-19 Vaccine Pipeline

<table>
<thead>
<tr>
<th>Pipeline Applicant(s)</th>
<th>Vaccine Type</th>
<th>Platform</th>
<th>country</th>
<th>Status</th>
<th>Dosages</th>
<th>Read more</th>
</tr>
</thead>
<tbody>
<tr>
<td>AstraZeneca</td>
<td>Vaccine</td>
<td>Serum</td>
<td>UK</td>
<td>Preclinical</td>
<td>2 doses</td>
<td><a href="https://www.astraZeneca.com">See</a></td>
</tr>
<tr>
<td>Moderna</td>
<td>mRNA vaccine</td>
<td>mRNA</td>
<td>US</td>
<td>Phase 3 ongoing</td>
<td>3 doses</td>
<td><a href="https://www.moderna.com">See</a></td>
</tr>
<tr>
<td>Pfizer / BioNTech</td>
<td>mRNA vaccine</td>
<td>mRNA</td>
<td>US</td>
<td>Phase 3 ongoing</td>
<td>3 doses</td>
<td><a href="https://www.biontech.de">See</a></td>
</tr>
<tr>
<td>Janssen</td>
<td>Viral vector</td>
<td>VIR</td>
<td>US</td>
<td>Phase 1 ongoing</td>
<td>2 doses</td>
<td><a href="https://www.janssen.com">See</a></td>
</tr>
<tr>
<td>Novavax</td>
<td>Full-length recombinant SARS-CoV-2 envelope nanoparticle vaccine</td>
<td>Serum</td>
<td>US</td>
<td>Phase 3 ongoing</td>
<td>3 doses</td>
<td><a href="https://www.novavax.com">See</a></td>
</tr>
</tbody>
</table>

---

#### Cold Chain Considerations

- **Refrigeration (2-8°C)**
- **Freezer (-20°C)**
- **Deep freezer (-70°C)**

#### Doses

- **Anticipated number of doses**

---

**Last updated October 21, 2020**

[ava.org](https://www.ava.org)
Global vaccine development

Zimmer, Corum, Wee New York Times

Coronavirus Vaccine Tracker

By Carl Zimmer, Jonathan Corum and Sui-Lee Wee  Updated Dec. 23, 2020

<table>
<thead>
<tr>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
<th>LIMITED</th>
<th>APPROVED</th>
<th>ABANDONED</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>21</td>
<td>18</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Vaccines testing safety and dosage  Vaccines in expanded safety trials  Vaccines in large-scale efficacy tests  Vaccines in early or limited use  Vaccines approved for full use  Vaccines abandoned after trials

Zimmer, Corum, Wee New York Times


Review

Traditional development

- Design and exploratory preclinical studies (years)
- Process development, preclinical, toxicology studies (2–4 years)
- IND submitted
- Clinical trials (5–10 years total)
- BLA submitted
- Regulatory review by FDA, EMA etc.
- Large-scale production and distribution

SARS-CoV-2 vaccine development

- Pre-existing components for SARS-CoV
- Process development, preclinical (months)
- Clinical trials (months)
- BLA submitted
- Regulatory review by FDA, EMA etc.
- Large-scale production and distribution

Fig. 1: Traditional and accelerated vaccine-development pipelines.

Traditional vaccine development can take 15 years or more, starting with a lengthy discovery phase in which vaccines are designed and exploratory preclinical experiments are conducted. This is usually followed by a phase in which more formal preclinical experiments and toxicology studies are performed and in which production processes are developed. During this process an investigational new drug (IND) application is filed and the vaccine candidate then enters Phase I, II, and III trials. If, when phase III trials are completed, the predetermined end points have been met, a biologics license application (BLA) is filed, reviewed by regulatory agencies and finally the vaccine is licensed. After that point, large-scale production begins. Vaccine development for SARS-CoV-2 is following an accelerated timeline. Because of knowledge gained from the initial development of vaccines for SARS-CoV and MERS-CoV, the discovery phase was omitted. Existing processes were adopted, and phase I/II trials were started. Phase III trials were initiated after the interim analysis of phase I/II results, with several clinical trial stages running in parallel. In the meantime, vaccine producers have started the large-scale production of several vaccine candidates, at risk. The exact pathway by which these vaccine candidates will be licensed—for example, through an initial emergency use authorization—is not yet clear.
Types of Vaccines

**mRNA**

- contain material from the virus that causes instructions for how to make a harmless protein that is unique to the virus.
- After our cells make copies of the protein, they destroy the genetic material from the vaccine.
- Our bodies recognize that the protein should not be there and build T-lymphocytes and B-lymphocytes that will remember how to fight the virus that causes COVID-19 if we are infected in the future.

**Protein Subunit vaccine**

- harmless pieces (proteins) of the virus that cause COVID-19 instead of the entire germ.
- Once vaccinated, our immune system recognizes that the proteins don’t belong in the body and begins making T-lymphocytes and antibodies.
- If we are ever infected in the future, memory cells will recognize and fight the virus.
Vector vaccines

- contain a weakened version of a live virus—a different virus than the one that causes COVID-19—that has genetic material from the virus that causes COVID-19 inserted in it (this is called a viral vector).

- Once the viral vector is inside our cells, the genetic material gives cells instructions to make a protein that is unique to the virus that causes COVID-19. Using these instructions, our cells make copies of the protein.

- This prompts our bodies to build T-lymphocytes and B-lymphocytes that will remember how to fight that virus if we are infected in the future.

How do COVID-19 Vaccines Work

- Different types of vaccines work in different ways to offer protection

- All types of vaccines, the body is left with a supply of “memory” T-lymphocytes as well as B-lymphocytes that will remember how to fight that virus in the future.

- It takes a few weeks for the body to produce T-lymphocytes and B-lymphocytes after vaccination.

- It is possible that a person could be infected with the virus that causes COVID-19 just before or just after vaccination; the person get sick because the vaccine did not have enough time to provide protection.

- Sometimes after vaccination while building immunity the vaccine can cause symptoms, such as fever.

- These symptoms are normal and are a sign that the body is building immunity.
Immune System

Our immune system uses several tools to fight infection.

Different types of white blood cells fight infection in different ways:
- **Macrophages**
  - white blood cells that swallow up, digest germs and dead or dying cells.
  - The macrophages leave behind parts of the invading germs called antigens.
  - The body identifies antigens as dangerous and stimulates antibodies to attack them.
- **B-lymphocytes**
  - are defensive white blood cells.
  - They produce antibodies that attack the pieces of the virus left behind by the macrophages.
- **T-lymphocytes**
  - are another type of defensive white blood cell.
  - They attack cells in the body that have already been infected.

After the infection
- the person's immune system remembers what it learned about how to protect the body against that disease.
- The body keeps a few T-lymphocytes, called memory cells, that go into action quickly if the body encounters the same virus again.
- When the familiar antigens are detected, B-lymphocytes produce antibodies to attack them.

Fig. 2 | Mucosal and systemic immune responses to natural infection with respiratory viruses and to vaccination - *Nature review*
Mucosal and Systemic Immune responses

The lower human respiratory tract is protected by IgG mostly IgG1. The upper respiratory tract is protected by secretory IgA1 (sIgA1).

Natural infection with respiratory viruses
- induces both a systemic immune response with IgG1 production and a mucosal immune response in the upper respiratory tract producing sIgA1.
- This leads to sterilizing immunity for many respiratory viruses.

Intramuscular or intradermal vaccination
- leads to a strong induction of serum IgG but not to mucosal IgA.
- lack of sIgA an individual is vulnerable to infection of the upper respiratory tract.

Intranasal vaccination
- can induce mucosal antibody responses provides sterilizing immunity in the upper respiratory tract.
- systemic immune responses produced but lower
- Currently, all SARS-CoV-2 vaccine candidates in clinical development are administered intramuscularly, and very are designed to induce mucosal immunity.

Mucosal immunity
- might not be required to protect from severe or symptomatic disease
- required to achieve optimal protection from infection and onward transmission of SARS-CoV-2.
Fig. 2

Overview of the diverse types of vaccines, and their potential advantages and disadvantages.

Fig. 3

NAb against CoVs and the scheme of Reverse Vaccinology 2.0. a NAb, such as mAbs, single-domain antibodies, scFvs, and Fabs, are able to target viral proteins, with RBD being the most potent target. This process may further block receptor binding and membrane fusion, commonly via targeting the S1 and/or S2 subunit. b The scheme of Reverse Vaccinology 2.0. Antibodies are isolated from convalescent patients and tested for their efficacy in vitro and in vivo. NAb are further studied in complex with the antigen, identifying the epitopes may aid in immunogen design, which will later be evaluated in animal models and humans.
NAb isolation strategies. 

**a** mAbs can be isolated from convalescent people previously infected with virus. After sorting antigen-specific B cells, deep sequencing can help pair the heavy- and light-chain genes. Selected pairs via functional screening can be used to produce mAbs. 

**b** Humanized mAbs can be isolated from immunized transgenic animal models, like mice. 

**c** Nanobodies can be constructed based on sequences of the camelid immunized with viral proteins and produced by phage carrying the VHH encoding sequences.

designing vaccines against SARS-CoV-2.

The immune responses induced by vaccines. Antigen-presenting cells (APCs) can process vaccine antigen and present it to CD8+ T cells and CD4+ T cells. CD8+ T cells can be stimulated by Th1 cytokines and in turn acquire the ability to attack the infected cells. Th2 cytokines can aid in the differentiation of B cells. The activated B cells can produce NAb. However, imbalanced immune responses have the potential to cause pulmonary immunopathology, partially due to aberrant Th2...
Potential strategies to optimize vaccines. 

**a** DNA vaccines linked with calreticulum or the cDNA of human β2-microglobulin and the α-1 and α-2 domains of MHC-I heavy chain can facilitate antigen presentation and induce the CTL response more directly. 

**b** Adjuvants have the potential to promote the immune response against CoVs, although several are involved in the immunopathology.

**c** Certain
RNA vaccines

- RNA vaccines are a relatively recent development.

- Similar to DNA vaccines, the genetic information for the antigen is delivered instead of the antigen itself.

- The antigen is then expressed in the cells of the vaccinated individual.

- Either mRNA (with modifications) or a self-replicating RNA can be used.

Recombinant protein vaccines

Fig. 3: Vaccine platforms used for SARS-CoV-2 vaccine development. a. A schematic of the structural proteins of the SARS-CoV-2 virion, including the lipid membrane, the genomic RNA covered by the nucleocapsid protein on the inside, the envelope proteins within the membrane, and the spike protein on the surface of the virus. b. The structure of the spike protein monomer is highlighted in dark brown and the RBD is shown in red. c–f. Current SARS-CoV-2 vaccine candidates include inactivated virus vaccines (h), live attenuated vaccines (i), recombinant protein vaccines based on the spike protein (e), the RBD (f) or on virus-like particles (g), replication incompetent vector vaccines (h), replication competent vector vaccines (h), inactivated virus vector vaccines that display the spike protein on their surface (j), DNA vaccines (k) and RNA vaccines (l).
Recombinant protein vaccines

Recombinant protein vaccines can be divided into recombinant
- spike-protein-based vaccines (Fig. 3e)
- RBD-based vaccines (Fig. 3f)
- virus-like particle (VLP)-based vaccines (Fig. 3g).

Recombinant proteins can be expressed in different expression systems
- insect cells, mammalian cells, yeast and plants
- RBD-based vaccines could also be expressed in Escherichia coli.

The elicited immune response is influenced by
- The type and extent of post-translational modifications, vary depending on the expression system.
  - E.g.: Recombinant spike-protein-based vaccines modifications such as deletion of the polybasic cleavage site, inclusion of two (or more) stabilizing mutations, and inclusion of trimerization domains—
- The mode of purification (soluble protein versus membrane extraction)

Advantages
- They can be produced without handling live virus
- Some recombinant protein vaccines—such as the FluBlok vaccine for influenza—have been licensed, and experience in producing them.

Novavax

NVX-CoV2373 from Novavax
- Novavax has published a primary analysis of the results from their randomized, observer-blind, placebo-controlled phase I trial
- 131 healthy adults aged 18–59 (NCT04368988).

This vaccine candidate uses
- a recombinant version of the full-length spike protein in which the polybasic cleavage site is deleted
- two stabilizing proline residues are present, which is expressed in insect cells and purified by membrane extraction.

The spike protein
- Exhibits rosette formation via its hydrophobic tails—similar to the FluBlok recombinant haemagglutinin-based vaccine from Sanofi—which has been termed as a ‘nanoparticle’ by Novavax
- The antigen was formulated with or without the saponin-containing adjuvant Matrix-M
- Given at doses of 5 μg or 25 μg in a prime–boost regimen with a 3-week interval
- The group receiving the unadjuvanted vaccine showed essentially no response
- after the prime dose and barely responded after the boost
Summary of Clinical Trials

There is a gradient of immunogenicity in neutralizing antibodies elicited by the vaccine candidates:

- Inactivated and AdV5 vaccine candidates are at the lower end, ChAdOx1 nCoV-19
- The mRNA candidates are in the medium range
- The recombinant protein vaccine candidate is at the high end, eliciting the greatest titers

Tolerability

- The inactivated and recombinant protein vaccines perform relatively well
- Followed by the mRNA vaccines—which show increased reactogenicity after the second dose
- and then followed by AdV- vectored vaccines.

Phased Distribution of EUA Vaccines

Equity is a crosscutting consideration: In each population group, vaccine access should be prioritized for geographic areas identified through CDC's Social Vulnerability Index or another more specific index.
Expiration and Beyond Use Date (BUD)

Determining when a vaccine or diluent expires is a critical step in proper storage and handling. Understanding vaccine expiration dates can help save your practice time and money.

All vaccines have expiration dates, and some routinely recommended vaccines have a beyond use date (BUD), which is calculated based on the date the vial is first punctured and the storage information in the package insert.

For COVID-19 vaccines:

- The expiration date may change for some vaccines as more stability data become available.
- The EUA Fact Sheets for Healthcare Providers or manufacturer websites will provide more information about expiration dates and BUDs.

EUA Fact Sheet for Recipients

Each vaccine-specific EUA Fact Sheet for Recipients will provide the following information:

- Basic information on COVID-19, symptoms, and what to discuss with a healthcare provider before vaccination
- Who should and should not receive the vaccine
- That recipients have the choice to receive the vaccine
- Dosage and vaccine series information
- Risks and benefits of the vaccine, including common side effects
- Information on reporting side effects to VAERS
- An explanation of what an EUA is and why it is issued
- Any approved available alternatives for preventing COVID-19
- Additional resources
What Does an EUA Mean for Healthcare Providers?

An EUA means that a COVID-19 vaccine has been authorized for use. The scope of authorized use is specified in the EUA Fact Sheet for Healthcare Providers (similar to a package insert for licensed vaccines).

For healthcare providers, conditions of use require:

- Providing the recipient/caregiver the Fact Sheet for Recipients (similar to a vaccine information statement [VIS] for licensed vaccines), which communicates vaccine benefits and risks to the recipient, via hard copy or electronic means
- Reporting vaccine administration data to CDC
- Reporting vaccine administration errors and specified adverse events to VAERS
EUA Fact Sheet for Healthcare Providers

Each vaccine-specific EUA Fact Sheet for Healthcare Providers will provide the following information:

- COVID-19 disease description
- Dosage and administration information
- Storage and handling instructions
- Dose preparation and administration information
- Requirements for use of vaccine under EUA
- Risks and benefits, including common adverse events (AEs)
- Any approved available alternatives for preventing COVID-19
- Reporting requirements, including reporting AEs to VAERS
- Additional resources
Phase 3, Randomized, Placebo-Controlled Study to Evaluate the Efficacy, Safety, and Immunogenicity of a SARS-CoV-2 Recombinant Spike Protein Nanoparticle Vaccine (SARS-CoV-2 rS) with Matrix-M1™

- Approx. 50,000 exposed in Phase 2 and international trials
- 2:1 randomization
- 2 shots, 21 days apart
- Up to 2 years follow-up
- Primary outcomes – COVID cases and severe COVID cases
- Secondary outcomes – Immune biomarkers
- Adverse events

1. Adults≥ 18 years of age by virtue of age, race, ethnicity or life circumstances are considered at risk of exposure to and infection with SARS-CoV-2.
2. Willing and able to give informed consent and comply with study procedures.
3. Participants of childbearing potential must agree to be heterosexually inactive from at least 28 days prior to enrollment and through 3 months after the last vaccination OR agree to consistently use a medically acceptable method of contraception.
4. Medically stable, medically acceptable vital signs.
5. Agree to not participate in any other SARS-CoV-2 prevention trial during the study follow-up.
1. Unstable acute or chronic illness. Criteria include:
   - Significant changes in prescribed medication in the past 2 months.
   - Workup of undiagnosed illness
   - Well-controlled HIV with undetectable HIV RNA and CD4 count > 200 cells/μL - OK

3. History of a previous laboratory-confirmed diagnosis of SARS-CoV-2 infection or COVID-19.

4. Received influenza vaccination or any other adult vaccine within 4 days prior to or within 7 days after either study vaccination.

5. Immunocompromised by disease or medication.

7. Received immunoglobulin, blood-derived products, or immunosuppressant drugs within 90 days prior to first study vaccination.

8. Active cancer (malignancy) on chemotherapy that is judged to cause significant immunocompromise within 1 year prior to first study vaccination (with the exception of malignancy cured via excision, at the discretion of the investigator).

9. Any known allergies to products contained in the investigational product.

10. Participants who are breastfeeding, pregnant or who plan to become pregnant within 3 months following last study vaccination.

12. Study team member or first-degree relative of any study team member.


Recommendations

• Inform participants of interim results and EUA status
• Offer active vaccine to placebo group participants when they become eligible for vaccination outside the trial
• Crossover to the vaccines should happen as part of the trial to allow follow-up data
• Encourage participants to stay in the trial to allow long-term safety and efficacy data to be collected for full licensure
• Reminded participants they can withdraw at any time.

Siham M. Mahgoub, MD

Medical Director Center for Infectious Disease
& Management Research (CIDMAR)

Howard University College of Medicine
Howard University Hospital

siham.mahgoub@Howard.edu

HELP FIND A VACCINE FOR COVID-19!

WE'RE LOOKING FOR:
- Adults age 18 and older
- People who are more likely to be exposed to COVID-19, including:
  - People with underlying medical conditions
  - People with greater chances of exposure at their job
  - People who live or work in senior care facilities
  - People over age 65
  - People who work in some parts of healthcare
  - People who work in retail
  - People who work in a group that has been impacted by COVID-19

If you decide to join a COVID-19 prevention trial, ideally, you will be compensated for your time.

You CANNOT get infected with SARS-CoV-2 or get COVID-19 from the study vaccine.

preventCOVID.org

Thank You!
New Lung Cancer Screening
New Guidelines (March 2021)

Amos Charles, MD
Clinical Associate Professor of Medicine
Warren Alpert Medical School of Brown University
Providence RI

I have No Financial Disclosures
Objectives

- Review the New US Preventive Services Task Force (USPSTF) Lung Cancer Screening Guidelines
- Review how the New Guidelines Increase Eligibility in Women, Blacks & Hispanics
- Explore Role of Tailored Criteria to improve Screening Inequities/Disparities

2020 Lung Cancer Statistics
United States

- Lung Cancer
  - 2nd most common cancer in both men & women
  - Number one cause of cancer deaths in US
    - More people die of lung cancer than colon, prostate and breast cancers combined.
  - Major public health burden
    - Estimated new cases: 228,820
    - 5-Year (2012-2016) Estimated Prevalence: 385,269
    - Estimated Deaths: 135,720
### 2020 Cancer Statistics

#### Estimated New Cases

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>191,930</td>
<td>276,480</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>116,300</td>
<td>112,520</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>73,300</td>
<td>69,650</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>62,100</td>
<td>65,820</td>
</tr>
<tr>
<td>Melanoma of the skin</td>
<td>66,190</td>
<td>40,170</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>45,520</td>
<td>40,160</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>42,380</td>
<td>34,860</td>
</tr>
<tr>
<td>Oral cavity &amp; pharynx</td>
<td>38,380</td>
<td>29,230</td>
</tr>
<tr>
<td>Leukemia</td>
<td>35,470</td>
<td>27,200</td>
</tr>
<tr>
<td>Pancreas</td>
<td>36,400</td>
<td>25,060</td>
</tr>
<tr>
<td>All Sites</td>
<td>893,660</td>
<td>912,930</td>
</tr>
</tbody>
</table>

#### Estimated Deaths

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung &amp; bronchus</td>
<td>72,500</td>
<td>63,220</td>
</tr>
<tr>
<td>Prostate</td>
<td>33,330</td>
<td>42,170</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>26,630</td>
<td>24,570</td>
</tr>
<tr>
<td>Pancreas</td>
<td>24,640</td>
<td>22,410</td>
</tr>
<tr>
<td>Liver &amp; intrahepatic bile duct</td>
<td>20,020</td>
<td>13,340</td>
</tr>
<tr>
<td>Leukemia</td>
<td>13,420</td>
<td>12,590</td>
</tr>
<tr>
<td>Esophagus</td>
<td>13,100</td>
<td>10,140</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>13,050</td>
<td>8,560</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>11,460</td>
<td>8,480</td>
</tr>
<tr>
<td>Brain &amp; other nervous system</td>
<td>10,190</td>
<td>7,830</td>
</tr>
<tr>
<td>All Sites</td>
<td>321,160</td>
<td>285,360</td>
</tr>
</tbody>
</table>
Lung cancer has a generally poor prognosis, with an overall 5-year survival rate of 20.5%.
- Most patients have no symptoms in the early stage of the disease
- Majority of cases present with the disease at an advanced stage.

Early-stage lung cancers have better prognosis and are more amenable to treatment.

Prevention & early detection of lung cancer by screening are our best tools in the fight against this rather aggressive and deadly disease.

---

**Lung Cancer**

**Histological Types**

- **Non-Small Cell Lung Ca (75% - 85%)**
  - Squamous carcinoma
  - Adenocarcinoma
  - Adenosquamous carcinoma
  - Large cell carcinoma (poorly differentiated)

- **Small Cell lung Ca (15% - 25%)**
Staging of lung cancer

Non-Small Cell Lung Cancer
- Tumor Node Metastasis (TNM) staging system
  - Clinical diagnostic staging based upon all investigations
    (clinical, laboratory, radiologic and pathologic)
    - 4 different stages (with different Tx approach & prognosis)

Small Cell Lung Cancer
- Limited disease (single radiation port)
- Extensive disease
Cigarette smoking & lung cancer

- Cigarette smoking and older age are the 2 most important risk factors for lung cancer.
  - The disease occurs mostly in people who smoke & are >65 years of age.
  - Small % of people are >45 yrs by time of diagnosis.

- Risk of lung cancer in persons who smoke increases with **cumulative quantity and duration of smoking** and with age but decreases with increasing time since smoking.

Cigarette smoking & lung cancer

- Cigarette Smoking
  - Accounts for approximately 90% of all lung cancers.

- In addition to old age and extent & duration of smoking other factors that increase risk of developing lung cancer in smokers include exposure to other carcinogenic factors such as asbestos, silica etc.
Other Risk factors for lung cancer

- Environmental toxins
  - Asbestos, radon, metals (arsenic, chromium, nickel), ionizing radiation and polycyclic aromatic hydrocarbons
- Lung diseases (COPD, fibrosis, alpha-1 antitrypsin deficiency, Tuberculosis)
- HIV infection
- Race, Ethnicity, Family history
- Dietary factors (Beta carotene, Vit E)

Lifetime chance of lung cancer

- Men (smokers & non-smokers)
  - 1 in 15
  - Black men 15% more likely than white men
    - Black men less likely to develop SCLC
- Women (smokers & non-smokers)
  - 1 in 17
  - Black women have a 14% lower risk than white women
Disease Screening Protocols:
– New War of the 1960’s
However, Interventions that lead to decreased mortality are not necessarily shared equally to all demographics in the United States.

As a result, those interventions do not benefit some as well as others resulting in significant disparities in diagnosis, treatment and mortality of a number of cancers, including lung cancer.

In 1971, President Richard Nixon *declared war on cancer* & signed the *National Cancer Act* leading to great research advances in the US.

In the subsequent years there have been declines in mortality overall for specific cancers such as breast, colorectal, prostate and lung cancers.

These declines have been attributed to cancer *prevention, early detection* (i.e mammography, colonoscopy, smoking prevention & lung ca screening w LDCT) & *effective cancer therapy*.
Trends in Cancer Incidence and Mortality


Trends in Cancer Incidence (1975 to 2016) and Mortality Rates (1975 to 2017) by sex, United States. Rates are age-adjusted to the 2000 US standard population. Incidence rates also are adjusted for delays in reporting.
Search for an ideal screening test for lung cancer started in the 1960s

- Serial CXR & Sputum Cytology (1960 & 1970s)
  - 55,000 male workers to receive a biannual CXR for 3 years or a baseline CXR and end-of-study CXR only

- Low-dose Chest CT vs CXR (1990s)
  - Conventional CT: Not ideal for screening due to high radiation exposure & long scan time
  - Low-dose CT: Excellent image resolution & comparable in sensitivity & specificity of lung nodule detection with conventional CT mode
    - Early Lung Cancer Action Project (ELCAP)
      - More malignant & benign nodules were detected with LDCT scan when compared to CXR
Lung Ca Incidence/Mortality disproportionately affect women and racial ethnic minority populations, yet screening guidelines for the past several years were derived from clinical trials of predominantly White men.

New USPSTF Lung Ca screening Guidelines expanded the age range and reduced the pack-years history hoping to ameliorate sex and race/ethnicity related disparities in lung cancer screening.

New USPSTF Lung Cancer Screening Guidelines

Systematic Review
- Seven randomized Clinical Trials (N= 84,486)
  - National Lung Screening Trial 2002-2004 (N= 53,454)
  - Nederlands-Leuvens-Lonkanker Screening Onderzoek (NELSON) Trial 2003-2006 (N= 15,792)
  - DANTE Trial (Italy) 2001-2006 (N= 2,472)
  - DLCST Trial (Denmark) 2004-2006 (N= 4,104)
  - Italung (Italy) 2004-2006 (N= 3,206)
  - LSS (US) 2000-2001 (N=3318)
  - LUSI (Germany) 2007-2011 (N=4052)
National Lung Screening Trial (NLST)

- 53,454 patients (33 participating institutions)
  - (enrolled from August 2002 to April 2004)
  - Randomized to receive either a LDCT (26,722) or CXR (26,732) annually for 3 years & then followed for an additional 3.5 years with no screening.
  - Eligible patients:
    - between 55 and 74 years of age
    - history of cigarettes smoking of at least 30-pack-year
    - Former smokers who had quit within the previous 15 years
  - Positive Results
    - Defined as non-calcified nodules >4mm for LDCT or any noncalcified nodules or mass for CXR

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Low-Dose CT Group (N=26,722)</th>
<th>Radiography Group (N=26,732)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at randomization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥55 yr†</td>
<td>2 (-0.1)</td>
<td>4 (-0.1)</td>
</tr>
<tr>
<td>55–59 yr</td>
<td>11,440 (42.8)</td>
<td>11,420 (42.7)</td>
</tr>
<tr>
<td>60–64 yr</td>
<td>8,170 (30.6)</td>
<td>8,198 (30.7)</td>
</tr>
<tr>
<td>65–69 yr</td>
<td>4,756 (17.8)</td>
<td>4,762 (17.8)</td>
</tr>
<tr>
<td>70–74 yr</td>
<td>2,351 (8.8)</td>
<td>2,345 (8.8)</td>
</tr>
<tr>
<td>≥75 yr†</td>
<td>1 (&lt;0.1)</td>
<td>3 (&lt;0.1)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15,770 (59.0)</td>
<td>15,762 (59.0)</td>
</tr>
<tr>
<td>Female</td>
<td>10,952 (41.0)</td>
<td>10,970 (41.0)</td>
</tr>
<tr>
<td>Race or ethnic group‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>24,289 (90.9)</td>
<td>24,260 (90.8)</td>
</tr>
<tr>
<td>Black</td>
<td>1,195 (4.5)</td>
<td>1,181 (4.4)</td>
</tr>
<tr>
<td>Asian</td>
<td>559 (2.1)</td>
<td>536 (2.0)</td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>92 (0.3)</td>
<td>98 (0.4)</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>91 (0.3)</td>
<td>102 (0.4)</td>
</tr>
<tr>
<td>More than one race or ethnic group</td>
<td>331 (1.2)</td>
<td>346 (1.3)</td>
</tr>
<tr>
<td>Data missing</td>
<td>161 (0.6)</td>
<td>209 (0.8)</td>
</tr>
<tr>
<td>Hispanic ethnic group‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>479 (1.8)</td>
<td>456 (1.7)</td>
</tr>
<tr>
<td>Neither Hispanic nor Latino</td>
<td>26,079 (97.6)</td>
<td>26,019 (97.4)</td>
</tr>
<tr>
<td>Data missing</td>
<td>164 (0.6)</td>
<td>237 (0.9)</td>
</tr>
<tr>
<td>Smoking status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>12,862 (48.1)</td>
<td>12,900 (48.3)</td>
</tr>
<tr>
<td>Former</td>
<td>13,860 (51.9)</td>
<td>13,832 (51.7)</td>
</tr>
</tbody>
</table>
National Lung Screening Trial (NLST)

- Rate of positive screening tests
  - 24.2% with low dose CT vs 6.9% with CXR

- Incidence of lung cancer
  - 645 cases per 100,000 person years (1060 cancers) in LDCT group
  - 572 cases per 100,000 person years (941 cancers) in CXR group

- Calculated deaths per 100,000 person years
  - 247 deaths from lung cancer in CT group
  - 309 deaths from lung cancer in CXR group

- 20% Relative reduction in lung cancer-related mortality with low dose CT screening as compared to CXR
Dutch-Belgian Lung cancer Screening Trial (NELSON)

- Large, Multi-Center, Randomized, Controlled Population-based Trial (started in 2000)
  - Aim: Show reduction in lung ca mortality of 25% or more with volume-based, LDCT lung-ca screening in **high-risk male participants** 10 yrs of follow-up
    - 13,195 men (primary analysis), 2,500 women (subgroup analysis)
    - Ages between 50 and 74
  - Randomly assigned to
    - Undergo CT screening at
      - T0 (baseline), year 1, year 3 and year 5.5
    - No screening

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Screening Group (N = 6538)</th>
<th>Control Group (N=6612)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>58 (55-63)</td>
<td>58 (54-63)</td>
</tr>
<tr>
<td>Range</td>
<td>46-76</td>
<td>44-69</td>
</tr>
<tr>
<td>Distribution</td>
<td>n or total no. (%)†</td>
<td></td>
</tr>
<tr>
<td>&lt;50 yr</td>
<td>3,6100 (51.1)</td>
<td>6,557 (51.1)</td>
</tr>
<tr>
<td>50-54 yr</td>
<td>1,011,6160 (24.4)</td>
<td>1,694,612 (25.8)</td>
</tr>
<tr>
<td>55-59 yr</td>
<td>2,226,6130 (33.9)</td>
<td>2,231,613 (34.0)</td>
</tr>
<tr>
<td>60-64 yr</td>
<td>1,336,6150 (23.7)</td>
<td>1,475,613 (22.4)</td>
</tr>
<tr>
<td>65-69 yr</td>
<td>797,6100 (12.1)</td>
<td>781,612 (11.9)</td>
</tr>
<tr>
<td>70-74 yr</td>
<td>329,6100 (5.1)</td>
<td>317,612 (5.1)</td>
</tr>
<tr>
<td>≥75 yr</td>
<td>40,6100 (0.4)</td>
<td>47,612 (0.7)</td>
</tr>
<tr>
<td>Pack-yr of smoking‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>31.0 (20-7.495)</td>
<td>31.0 (20-7.495)</td>
</tr>
<tr>
<td>Range</td>
<td>0.4-150.5</td>
<td>1.3-156.0</td>
</tr>
<tr>
<td>Cigarettes smoked per day — no. total no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>20,6155 (0.3)</td>
<td>18,6594 (0.3)</td>
</tr>
<tr>
<td>11-15</td>
<td>1470,6155 (22.4)</td>
<td>1437,6598 (21.8)</td>
</tr>
<tr>
<td>16-29</td>
<td>1859,6155 (28.3)</td>
<td>1859,6596 (28.2)</td>
</tr>
<tr>
<td>21-25</td>
<td>1732,6155 (26.4)</td>
<td>1779,6596 (27.0)</td>
</tr>
<tr>
<td>26-30</td>
<td>669,6155 (10.2)</td>
<td>723,6596 (11.0)</td>
</tr>
<tr>
<td>31-40</td>
<td>434,6155 (6.9)</td>
<td>437,6596 (6.6)</td>
</tr>
<tr>
<td>&gt;40</td>
<td>361,6155 (5.5)</td>
<td>343,6596 (5.2)</td>
</tr>
</tbody>
</table>
Result Summary of Nelson Trial

At 10 years follow up

- Incidence of lung cancer
  - 5.58 cases per 1000 person-years in screening group
  - 4.91 cases per 1000 person-years in the control group

- Lung cancer mortality
  - 2.50 deaths per 1000 person-years in screening group
  - 3.30 deaths per 1000 person-years in the control group

- Cumulative rate ratio for death from lung cancer
  - 0.76 (95% CI, 0.61-0.94 P=0.01) in screening group as compared with the control group
  - Among Women the rate ratio was
    - 0.67 (95% CI, 0.38 to 1.14)
Figure 1. Lung-Cancer Incidence and Lung-Cancer Mortality among Male Participants.
Panel A shows the cumulative lung cancer incidence (per 1000 person-years) according to follow-up year since randomization. Panel B shows the cumulative lung-cancer mortality (per 1000 person-years) according to follow-up year since randomization. Cause of death (with known date of lung-cancer diagnosis) was defined by the cause-of-death committee, if available, or by vital-statistics registers.

Figure: Clinician Summary: Screening for Lung Cancer

- What does the USPSTF recommend? Adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years.
  - Screen for lung cancer with low-dose computed tomography (CT) every year.
  - Stop screening once a person has not smoked for 15 years or has a health problem that limits life expectancy or the ability to have lung surgery.
  - Grade: B

- To whom does this recommendation apply? Adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years.
  (See below for definition of pack-year.)

- What’s new? The USPSTF has revised the recommended ages and pack-years for lung cancer screening. It expanded the age range to 50 to 80 years (previously 55 to 80 years) and reduced the pack-year history to 20 pack-years of smoking (previously 30 pack-years).

- How to implement this recommendation?
  1. Assess risk based on age and pack-year smoking history: Is the person aged 50 to 80 years and have they accumulated 20 pack-years or more of smoking?
  2. A pack-year is a way of calculating how much a person has smoked in their lifetime. One pack-year is the equivalent of smoking an average of 20 cigarettes – 1 pack-per-day for a year.
  3. Screen: If the person is aged 50 to 80 years and has a 20 pack-year or more smoking history, engage in shared decision-making about screening.
    a. The decision to undertake screening should involve a discussion of its potential benefits, limitations, and harms.
    b. If a person decides to be screened, refer them for lung cancer screening with low-dose CT. Ideally to a center with experience and expertise in lung cancer screening.
    c. If the person currently smokes, they should receive smoking cessation interventions.

- How often?
  - Screen every year with low-dose CT.
  - Stop screening once a person has not smoked for 15 years or has a health problem that limits life expectancy or the ability to have lung surgery.

- What are other relevant USPSTF recommendations?
  - The USPSTF has made recommendations on interventions to prevent the initiation of tobacco use in children and adolescents, and on behavioral and pharmacotherapy interventions for tobacco smoking cessation in adults, including pregnant women. These recommendations are available at https://www.uspreventiveservicestaskforce.org

- Where to read the full recommendation statement?
  - Visit the USPSTF website (https://www.uspreventiveservicestaskforce.org) to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms, supporting evidence, and recommendations of others.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision-making to the specific patient or situation.
Despite decreasing incidence/mortality rates due to lung ca in the general population, certain minorities & vulnerable populations remain at elevated risk

- Black individuals who smoke continue to have a higher risk of developing & dying from lung cancer with less smoking exposure compared with White smoker (N Engl J Med. 2006; 354(4): 333-342)

- Black patients referred to lung screening program experience lower rates of screening & longer time to follow up (Lake & al. BMC Cancer 2020; 561)

- Hispanics are more likely to have advanced stages of lung cancer when diagnosed & they are less likely to undergo surgery (Am J Resp Crit Care Med, 2005)
Figure 1. Lung cancer–specific Kaplan-Meier survival curves by ethnicity. Lung cancer–specific survival was significantly worse for Hispanics compared with whites (log-rank test, p = 0.008).

Published in: Juan P. Wisnivesky; Thomas McGinn; Claudia Henschke; Paul Hebert; Michael C. Iannuzzi; Ethan A. Halm; Am J Respir Crit Care Med 2005; 171:1158-1163.
Figure 3. Survival from causes other than lung cancer by ethnicity. Non–lung cancer survival for Hispanics and whites was not significantly different (log-rank test, p = 0.8). For this analysis, deaths from lung cancer were treated as random, censored observations. The curves are a measure of the overall burden of serious comorbid conditions.

Published in: Juan P. Wisnivesky; Thomas McGinn; Claudia Henschke; Paul Hebert; Michael C. Iannuzzi; Ethan A. Halm; Am J Respir Crit Care Med 2005 1711158-1163.

Figure 2. Lung cancer–specific Kaplan-Meier survival curves according to treatment and ethnicity. Lung cancer–specific survival was similar among Hispanic and white patients who underwent surgery (log-rank test, p = 0.12). Those who did not undergo surgery also had similar survival (log-rank test, p = 0.52).

Published in: Juan P. Wisnivesky; Thomas McGinn; Claudia Henschke; Paul Hebert; Michael C. Iannuzzi; Ethan A. Halm; Am J Respir Crit Care Med 2005 1711158-1163.
Determinants of Cancer Disparities

3 major determinants of Health Disparities
- Culture
- Poverty (Low Socioeconomic status)
- Historical Effects of Social Injustice

To Overcome some of the barriers, it is important to be aware of their existence and understand the meaning of these critical social variables. They exist in every society & in every group within any society.

Lung cancer among never smokers (LCINS)

Geographic/Gender differences in incidence
- In Asia, 60-80% of women with lung cancer are never smokers
- In the United States
  - One analysis of data from patients in 5 large cohort studies
    - 19% of lung cancers in women occur in nonsmokers, compared to about 9% in nonsmoking men

There is Currently No Screening for Lung Cancer among never smokers.
Barriers related to culture

It is important to distinguish between race and culture. Culture is not synonymous with race. Many cultures exist within any so-called racial group [6]. For example, there are many cultures in the Asian racial group, including Chinese, Japanese, Filipino, Korean, Vietnamese, and Thai.

Fig. 3. The association of poverty and lack of resources. (From Freeman HP. Cancer in the socioeconomically disadvantaged. CA Cancer J Clin 1989;39(5):266–88; with permission.)
**New Lung Cancer Screening Guidelines**

- A-50-80-20-15
- Vs
- A-55-80-30-15

More than likely will lead to a larger group of people being screened with both potential benefits & harm of screening

All Clinicians need to be more aware of the existence of some of these cultural differences when advising patients.

---

**Barriers classified by cultural factors, social injustice, and poverty factors**

<table>
<thead>
<tr>
<th>Cultural barriers</th>
<th>Social injustice barriers</th>
<th>System barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual and role of culture</td>
<td>Limited access because of racial and ethnic issues</td>
<td>Lack of physician recommendation for screening test</td>
</tr>
<tr>
<td>Patient barriers related to educational information and their culture</td>
<td>Financial issues that affect patient access to care</td>
<td>Lack of screening facilities</td>
</tr>
<tr>
<td>Lack of accurate cancer information</td>
<td>Financial issues affecting health care providers</td>
<td>Limited education efforts</td>
</tr>
<tr>
<td>Available information is unusable because of literacy, language, or cultural aspects</td>
<td>Lack of treatment for uninsured</td>
<td>Lack of treatment for uninsured</td>
</tr>
<tr>
<td>Barriers related to impact of culture and use of cancer care</td>
<td>Health insurance status</td>
<td>Health insurance status</td>
</tr>
<tr>
<td>Cultural perspectives or biases, which may cause people to avoid screening</td>
<td>Problem of paying for services</td>
<td>Problem of paying for services</td>
</tr>
<tr>
<td>Cultural belief about cancer and cancer fatalism, which may prevent people from seeking treatment</td>
<td>Fragmentation of care</td>
<td>Fragmentation of care</td>
</tr>
<tr>
<td>Cultural perception of illness, which may affect diagnosis and treatment of cancer</td>
<td>Limited access on screening and treatment services</td>
<td>Limited access on screening and treatment services</td>
</tr>
<tr>
<td>Cultural factors that play a role in acting on medical and caregiver preferences, including folk healing methods</td>
<td><strong>Physical barriers</strong></td>
<td></td>
</tr>
<tr>
<td>Cultural factors that determine how patients explain and tolerate pain</td>
<td>Transportation</td>
<td></td>
</tr>
<tr>
<td>Cultural perception of quality care</td>
<td>Distance to cancer care</td>
<td></td>
</tr>
<tr>
<td>Cultural behaviors that are risk prompting</td>
<td>Time off work or daycare issues</td>
<td></td>
</tr>
<tr>
<td>Lack of community support for screening activities</td>
<td>Barriers related to impact of culture and access to cancer care</td>
<td></td>
</tr>
</tbody>
</table>

---

CA Cancer J Clin 1989;39(5); 266-88; with permission
Thank You

Amos Charles, MD
Clinical Associate Professor of Medicine
Warren Alpert Medical School of Brown University
Amos.Charles@va.gov
Thank You for Attending the Fourth Annual World Health Continuing Medical Education Conference:

Health Disparities Impacting Global and Local Caribbean Populations
Provided by Healthfirst, Howard University College of Medicine, and MediNova

COURSE DIRECTORS
Susan J. Beane, M.D.
Executive Medical Director
Healthfirst
Shelly McDonald-Pinkett, M.D., F.A.C.P., C.P.H.Q.
Chief Medical Officer
Howard University Hospital
Henry R. Paul, M.D.
President
MediNova
Roxanne Smith-White, M.D., F.A.C.P.
Chief Executive Officer,
Lemurian Healthcare PC

PLANNING COMMITTEE
Walter P. Bland, M.D., L.F.A.P.A.
Clinical Associate Professor
Department of Psychiatry and Behavioral Sciences
Assistant Dean, Continuing Medical Education
Howard University College of Medicine
Pascale Jean
Global Sourcing Manager
Nielsen
Elizabeth J. Jean-Jacques, M.P.A.
Director, Healthfirst Partnerships
Healthfirst
Chance Manley
Staff Assistant to the Chief Medical Officer
Howard University Hospital
LaToya Norman, M.P.H.
Manager, Healthfirst Programs
Healthfirst
Raymond Thornhill
Senior Manager, Enterprise Events & Special Projects, Healthfirst

FACULTY
Georges J. Casimir, M.D.
Amos Charles, M.D.
Maurice B. Fluitt, Ph.D.
Michelle L. Hershman, M.D.
Adeyinka O. Laiyemo, M.D., M.P.H., F.A.C.G., A.G.A.F.
Siham Mahghoub, M.D., F.A.C.E., F.A.A.P.
Gail Nunlee-Bland, M.D., F.A.C.E., F.A.A.P.
Errol L. Pierre, M.P.A.
Robin Roberts, M.D.
Duane E. Sands, M.D.
Berndt Schmit, M.D., M.B.O.E.
Ambereen Sleemi, M.D., M.P.H.
Monique Thompson, C.P.H.Q., N.M.D., BSc
About Healthfirst
Healthfirst is New York’s largest not-for-profit health insurer, earning the trust of 1.6 million members by offering access to affordable healthcare. Sponsored by New York City’s leading hospitals, Healthfirst’s unique advantage is rooted in its mission to put members first by working closely with its broad network of providers on shared goals. Healthfirst takes pride in being pioneers of the value-based care model, recognized as a national best practice. For more than 25 years, Healthfirst has built its reputation in the community for top-quality products and services New Yorkers can depend on. It has grown significantly to serve the needs of members, offering market-leading products to fit every life stage, including Medicaid plans, Medicare Advantage plans, long-term care plans, qualified health plans, and individual and small group plans. Healthfirst serves members in New York City and on Long Island, as well as in Westchester, Sullivan, and Orange counties.

For more information on Healthfirst, visit healthfirst.org.

Howard University College of Medicine
Founded in 1868, the College of Medicine takes pride in its long and illustrious history of training students to become competent and compassionate physicians who provide health care in medically underserved communities.

While the College offers excellent research and research training opportunities, the major emphasis is on preparing students to deliver patient care in communities that have a shortage of physicians and public health professionals.

The College living alumni, more than 4,000, are a testimony that an excellent medical education can be obtained at Howard. Although opportunities for minority students have increased at other medical schools, the College uniquely addresses the special health care needs of medically underserved communities and continues to produce a significant number of the nation’s minority physicians. The College is a part of Howard University, a comprehensive research university. While the University community has traditionally been predominantly black, Howard has been an interracial and cosmopolitan institution throughout its history, with students, faculty and staff of all races and from many foreign nations. All must meet the high standards
of excellence of Howard University, which has the largest concentration of black faculty and student scholars in the country.

In addition to the College of Medicine, the Howard University Health Sciences Center includes the Howard University Hospital; the College of Dentistry; the College of Pharmacy, Nursing and Allied Health Sciences; the Louis Stokes Health Sciences Library; and the Student Health Center. Located in the nation’s capital, the College can draw upon the immense medical resources of this area, including the National, Institutes of Health and the National Library of Medicine.

**MediNova**

**Our Mission**

We have a two-part mission:

To provide accessible, high-quality medical treatment to the underserved communities of Northeastern Haiti in a manner that protects the dignity and independence of our patients with the highest standards of integrity, impartiality and openness.

To advance the field of primary medical care in the community by providing educational opportunities for both current and future local medical practitioners.

**Our Vision**

We are seeking to advance the continued growth, advancement and sustainability of medical care in the region by both directly providing primary care to underserved communities and individuals in a manner reflecting our commitment to respect, excellence and integrity in addition to training future and current local medical practitioners in the latest and most effective means of treatment.

We believe that all individuals have the right to the highest attainable standard of physical and mental health, which includes access to medical services.
Thank You for Attending the Fourth Annual
World Health Continuing Medical Education Conference:
*Health Disparities Impacting Global and Local Caribbean Populations*
Provided by Healthfirst, Howard University College of Medicine, and MediNova