Mitigating the Opioid Crisis in Alabama (MOCA)

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The Challenge:

Acute pain is an isolated, temporary condition that can be treated with opioids and non-opioid medications. When opioids are prescribed and appropriately monitored, they can provide safe and effective analgesia, especially for acute postoperative and post-procedural pain, and for patients near the end of life. Chronic pain is much more complex and affects approximately 100 million U.S. adults in the United States [1, 2]. Chronic pain can be so debilitating and overwhelming that it can lead to stress, anxiety, and depression, all of which can exacerbate the perception of pain [3].

In the 1990s, pain experts began to promote the short and long-term use of opioids for chronic pain syndromes without considering the high likelihood of addiction and other health-related adverse effects. Today, the impacts of opioid addiction are much better appreciated; however, the healthcare community has generally not addressed this rising concern. Pain can be magnified with continued opioid use [4] and can enhance risks for other disorders including depression, osteoporosis, fibromyalgia and PTSD [5].

The societal impacts of opioid addiction are many. Opioid overuse negatively affects employee productivity and increases the burden on emergency rooms, crisis centers, hospitals and incarceration, since it fuels drug-seeking behavior, leading to illicit drug trade/use. Indirect impacts are reflected in increased family strife, divorce, suicide, increased cost for health insurance premiums, police and prisons, lost wages and economic costs to businesses. Chronic pain alone costs society at least $560-635 billion annually [1]. While opioids have a critical role in acute pain management, chronic use brings greater disability, addiction, loss of quality of life, and disease state generation [4, 6, 7].

Many Alabamians, who are prescribed opioid painkillers for a wide variety of ailments, become long-term users. According to the CDC, Alabama now leads the nation in opioid prescriptions with an average of 1.2 prescriptions per person compared to the national average of 0.71 prescriptions per person with significant adverse economic, legal and health care consequences. As a result of the growing rate of addiction, there is an alarming rise of the use of illicit opioids, impacting the state's economy, e.g., rising costs for law enforcement, prosecution, imprisonment, ER visits and hospitalization, lost workdays, squandered job opportunities and wasted talent. Disability, pain and suffering are at peak levels. The opioid conundrum is a crisis, and is fueling a breakdown in society in the USA and especially in Alabama. ***Therefore, this Grand Challenge project will develop a multidisciplinary approach that will greatly reduce the opioid crisis in Alabama and provides a model for research, education and treatment that can be used for other areas of the USA***.

The Proposed Strategy:

NIH defines the leading factor in our health care burden as being the inability to adequately manage chronic pain. Resolution of the current problem involves improving pain management in the acute phase which must be addressed by research into recovery and prevention of chronic pain with minimal and typically transient opioid use and improved management of existing

chronic pain patients. To achieve this, MOCA will employ an integrated research, treatment, and education platform that addresses the core causes.

Improving certain underlying factors will hold the key to overall success: technological remote patient monitoring, effective initial and ongoing assessments, integration of the health care team, defining effective alternative therapies, and greater patient involvement and education. Together, these define and support integrative therapeutic protocols and best practices.

Therefore, our solution to mitigate the opioid crisis in Alabama consists of three components as consortia: **Research**, **Therapy** and **Education**, each having a specific role.

Research:

The **Opioid Research Consortium (ORC)** will consist of three groups, each working in a specific area of research. Their combined efforts will generate what will become the basis of the Therapy and Education consortia. The Genetic Group (GG) will identify individuals with a high genetic risk for adverse effects of opioid use including addiction risk, rapid metabolizers, slow metabolizers, non-metabolizers, pregnancy and other disease state development. The Patient Outcomes Group (POG) will use validated tools to measure patient outcomes, focusing on non-opioid based alternative therapies for pain and opioid addiction. The Patient Portal Group (PPG) will develop patient portals with assessment platforms capable of providing comparative therapeutic effectiveness research to determine the optimal therapies for pain that avoid progression to long-term opioid therapy. The use of validated tools to measure patient outcomes and access to patient portals with assessment platforms will be facilitated by using cell phone apps that will be developed by students at UAB. The discoveries of these groups will be disseminated in the forms of manuscripts and seminars and best practice statements.

Therapeutics:

The **Opioid Therapy Consortium (OTC)** will include medical decision makers in patient care, policy, and health administration. This consortium will work on adapting the findings of the various groups of the Opioid Research Consortium to establish standard practices that will involve the integration of genetics, opioids, and alternative treatments for best practices in the treatment of pain and avoidance of opioid addiction. Once the integrated therapies are generated, the OTC will determine an optimal way to implement these evidence-based therapies for public benefit.

Education:

Education is a critical component of our solution to mitigate the opioid crisis in Alabama. The findings of the ORC will be adapted to evidence based practice by the OTC and will be disseminated to the public through education. The UAB Biotechnology Program will form the **Opioid Education Consortium (OEC)**. The consortium will be comprised of diverse nonprofit state, university, and grassroots organizations along with UAB students from CAS, School of Public Health, School of Health Professions, policymakers, community leaders and the UAB Center for Community Outreach Development (CORD). This consortium will deliver education in the proper use of opioids in therapy, the efficacy of non-opioid drug and medical devices in mitigating pain, and the long-term ramifications of illicit use of opioids.

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The Partnership:

Research:

The **Opioid Research Consortium (ORC)** will consist of three groups:

- Genetic Group (GG) will inculde the Hudson Alpha Institute of Biotechnology (iCubae), the UAB Genetics Department, and the UAB Biotechnology Program
- Patient Outcomes Group (POG) will include CAS, the Collat School of Business, School of Public Health, School of Nursing, Teksouth, and Patient Outcomes Analytics
- Patient Portal Group (PPG) will include CAS, Theradym Outcomes Research, Teksouth, and the UAB Pain Clinic

Therapeutics:

The **Opioid Therapy Consortium (OTC)** will include medical decision makers in patient care, policy, and health administration. This consortium will work on adapting the findings of the various groups of the Opioid Research Consortium to establish standard practices that will involve the integration of genetics, opioids, and alternative treatments for best practices in the treatment of pain and avoidance of opioid addiction. Once the integrated therapies are generated, the OTC will determine an optimal way to implement these evidence based therapies for public benefit.

Education:

The **Opioid Education Consortium (OEC)** will be comprised of diverse nonprofit state, university, and grassroots organizations along with UAB students from:

- CAS
- School of Public Health
- School of Health Professions
- School of Nursing
- School of Medicine
- Policymakers and Community leaders
- UAB Center for Community Outreach Development (CORD).

UAB CORD, through a partnership with the city and surrounding areas school systems, will deliver this information to K-12 students through camps and through partnerships with community action groups through town hall type meetings.

The Biotechnology, Biomedical Health Science, and the Biomedical Sciences Programs will provide this education to their undergraduate and graduate students in the form of team based lab and lecture courses already in place to provide training for their students on the proper role of opioids in pain management and best practices. In addition, the Biotechnology Program will work with faculties in the Schools of Medicine, Dentistry, Optometry and Nursing to develop lectures that are aimed at educating future healthcare workers of the role that opioids in pain management and the findings by the ORC and OTC that are recommended as best practices. Directors of clinical departments will be charged with dissemination of this education through seminars/grand rounds in their departments to educate their residents, faculty members and staff. Finally, discoveries that are generated through MOCA will be used as teaching tools for undergraduate students from across campus through the Student Accelerator Program that provides training on the process of transitioning discoveries from the bench to the market.