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Center to Eliminate
Health Disparities

A Plan to Address Documented Health Disparities While Enhancing UTMB Capacity for Coordinated Action

The 2nd Improvement Plan
Fulfilling DSRIP Performance Measure I-11.1

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February, 2016

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Acknowledgements

We are very grateful to the support from UTMB Office of the President-Waiver Operations, Office of Health Policy and Legislative Affairs (HPLA), Clinical Data Management, Oliver Center for Patient Quality and Safety, Admitting & Registration Services, and Ambulatory Training & Development.

- Center to Eliminate Health Disparities. (2016). A Plan to Address Documented Health Disparities while Enhancing UTMB Capacity for Coordinated Action: The 2nd Improvement Plan. Galveston, TX: University of Texas Medical Branch. Available at: http://www.utmb.edu/hpla/health-disparities/publications.

The project that is the subject of this report was approved by Texas Health and Human Services Commission (HHSC) and conducted by members of Center to Eliminate Health Disparities with the assistance of Dr. Karl Eschbach from Department of Internal Medicine-Geriatric Medicine. The views presented in this report are those of CEHD and are not necessarily those of the funding agencies.

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Executive Summary

This is the **Second Improvement Plan** to address disparities in UTMB patient health outcomes as a required deliverable for "Strengthening the UTMB Health Information System to Reduce Health Disparities," also known as the REAL (Race, Ethnicity and Language) Data Project.

This improvement plan aims to address three racial disparities observed among UTMB patients admitted with heart failure as a primary diagnosis across a three-year period (January 1st, 2012 to December 31st, 2014). The REAL Data Project research team finds that, compared to White and Hispanic patients admitted with heart failure, African American patients admitted with heart failure have a (1) higher percentage of combined (systolic and diastolic) heart failure, (2) higher rate of 6-month readmissions, and (3) longer average length of stay.

To address these three disparities, the plan incorporates specific strategies and actions to ensure:

- Better understanding of underlying causes and determinants of the disparities and identification of best practices to address them;
- Use of population health management as a holistic public health approach that focuses on preventive and promotive measures while promoting multi-sectoral interventions and enhancing community active participation;
- Use of a disease management approach that adopts multi-disciplinary and integrated care and incorporates preventive, curative, and rehabilitative measures at the individual level while benefiting from advancements in medical technology;
- Coordinated action among UTMB mission groups to address the disparities;
- Scale-up of existing initiatives addressing heart failure disparities; and
- Facilitation of strong partnerships among all relevant stakeholders to address heart failure disparities.

More specifically, the research team recommends:

- Investigating risk factors, causes, and upstream determinants of heart failure and conditions leading to heart failure especially among the African American population;
- Developing and implementing methods to identify and track patients with or at risk for heart failure;
- Improving heart failure patients' discharge plan, including the development of patient-customized post-discharge follow-up measures that benefit from advancements in remote monitoring devices, mobile communication technology and outreach from community health workers;
- Enhancing access to health care for the uninsured and underinsured by developing and promoting the utilization of affordable alternatives like telehealth; and
- Enhancing preventive measures and public health interventions to reduce the incidence of heart failure and conditions that lead to heart failure especially among middle-aged African Americans.

INTRODUCTION

The Center to Eliminate Health Disparities (CEHD) presents its **Second Improvement Plan** to address disparities in UTMB patient health outcomes. The report is a required deliverable for "Strengthening the UTMB Health Information System to Reduce Health Disparities", a Region 2 Texas Medicaid 1115 Waiver project supported by the Delivery System Reform Incentive Payment (DSRIP) program. We refer to the project as the "REAL (Race, Ethnicity and Language) data project".

This Second Improvement Plan incorporates specific strategies and interventions to address three racial disparities among UTMB patients admitted with heart failure as a primary diagnosis. The three disparities which are related to condition severity, rates of readmission, and length of stay at the hospital[i] were uncovered by analyzing UTMB inpatient data across a three-year period (January 1st, 2012 to December 31st, 2014). The suggested strategies and interventions are based on published studies and reviews as well as best practices utilized and documented by professional organizations and health systems that are nationally recognized leaders in the area of heart failure and addressing related disparities.

Although confident in the results, the project team recognizes the need for further research that incorporates outpatient, population-level, and qualitative data to provide supplementary evidence to strengthen the commitment of relevant stakeholders. Recommendations for further research are thoroughly discussed in different sections in this report.

In addition, this report provides updates on the progress achieved since the submission of the **First Improvement Plan** (March, 2015).

HEALTH DISPARITIES IN UTMB PATIENTS HOSPITALIZED WITH HEART FAILURE AND IMPLICATIONS FOR ACTION

The UTMB REAL data project is an example of the meaningful use of electronic health records (EHRs). It supports decision making processes at the institutional level by 1) improving the UTMB health information system to report patient outcomes stratified by demographic characteristic and billing/insurance status; 2) identifying priority disparities; and 3) developing and disseminating improvement plans to address disparities that focus on strengthening coordination among UTMB mission groups and building partnerships with relevant stakeholders.

In the second cycle of data analysis, the REAL data project team chose to focus on one health condition/illness for which in-depth analysis of EHRs would help UTMB meet the "triple aim": improving the patient experience of care (including quality and satisfaction); improving the health of populations; and reducing the per capita cost of health care. Heart failure was selected for the second cycle of analysis, because it meets all three criteria.

Heart Failure is one of the leading causes of hospitalization and readmission in the US. It affects 5.7 million people with around half a million new cases annually. It contributes to the premature death of 55,000 Americans annually. The economic burden of heart failure is high, with a direct cost of $34.4 billion. Hospitalization for heart failure accounts for half of the total cost for heart failure [5].

The companion report "Documenting Health and Healthcare Disparities in the UTMB Patient and Community Population: Second Report" identifies three racial disparities in UTMB patients with heart failure. These disparities are identified through an analysis of three-year UTMB inpatient data (from January 1st, 2012 to December 31st, 2014). The identified disparities are:

[i] These disparities are described briefly in the next section and in detail in the companion report, "Documenting Health and Healthcare Disparities in the UTMB Patient and Community Population: Second Report".

- **Higher percentage of combined (systolic and diastolic) heart failure among African Americans hospitalized for heart failure at UTMB.** Using ICD-9-CM codes to stratify each racial group of UTMB inpatients with heart failure as a primary diagnosis by type of heart failure showed that 30.4% of African American patients had combined heart failure (systolic and diastolic), the most severe type of heart failure. The percentage of combined heart failure was 21.2% in White and 21.6% in Hispanic patients.

- **Higher rates of 6-month readmissions among African Americans hospitalized for heart failure at UTMB.** Comparing the interval between each two hospitalizations for each racial group showed that African American patients were more likely to be readmitted within 6 months. The 6-months readmission rate was 29.5% in African American patients compared to 23.3% and 20.1% for Hispanic and White patients respectively.

- **Longer length of stay among African Americans hospitalized for heart failure at UTMB.** The risk-adjusted average number of hospitalization days was higher in African American patients hospitalized with heart failure (7.1 days) compared to only 6.1 days for White patients and 5.9 days for Hispanic patients. In addition, the length of stay remained higher in African American patients for each heart failure type (systolic, diastolic and combined).

As more than 50% of the cost of heart failure care in the US is spent on hospitalization, eliminating disparities in readmission and length of stay by reducing the rate of readmission for African American patients and shortening their length of stay is one strategy for reducing health care costs.

Further interpretation of these finding is beyond the scope of this report, which instead focuses on recommendations to address these three disparities. The decision to address these disparities in an effective way requires an understanding of why they exist and how best to address them. Because decisions about how best to tackle these and other disparities can only happen as part of a dialogue with clinicians and other UTMB leaders, the recommendations in the next section are provisional.

Addressing Health Disparities In UTMB Patients with Heart Failure

Heart failure is an emerging epidemic (characterized by increasing incidence, enhanced survival and therefore increasing prevalence) and major public health problem which is associated with high rates of mortality, significant mobility/disability, and high economic burden [5]. At the individual level, it is a critical and life threatening medical condition.

The suggested actions to address the three identified disparities in UTMB patients hospitalized with heart failure are informed by the following strategies and principles:

- Better understanding of underlying causes and determinants of the disparities and identification of best practices to address them;
- Use of population health management as a holistic public health approach that focuses on preventive and promotive measures while promoting multi-sectoral interventions and enhancing community active participation;
- Use of a disease management approach that adopts multi-disciplinary and integrated care and incorporates preventive, curative, and rehabilitative measures at the individual level while benefiting from advancements in medical technology;
- Coordinated action among UTMB mission groups to address the disparities;
- Scale-up of existing initiatives addressing heart failure disparities; and
- Facilitation of strong partnerships among all relevant stakeholders to address heart failure disparities.

Selected key actions are described in detail in Table 1.

Table 1: Suggested actions to address documented disparities in UTMB patients with heart failure

Suggested Actions	HEART FAILURE DISPARITY		
	Higher % of combined heart failure among UTMB African American inpatient population	**Higher rates of 6-month readmissions among Af. Americans**	**Longer length of stay among Af. Americans**
Investigate risk factors, direct and underlying causes, and determinants	Conduct research to investigate causes of delayed diagnoses and management of diseases leading to heart failure or heart failure in early stages. This includes the lack of access to health care and healthcare seeking behavior. Research should include a systematic review of the literature to compare findings at the UTMB level with other health systems across the nation and also with state and national figures. Utilizing qualitative and quantitative methods, the research work should focus on the Africa American population of Galveston County to better understand specific reasons of delayed diagnoses and/or management among this population in this particular geographical region. Results should help inform the creation of effective strategies for timely diagnosis and management of pre-heart failure conditions or early stages of heart failure.	Conduct research that combines qualitative and quantitative techniques to study (in-depth) the factors and determinants that contribute to frequent readmissions especially among African American patients. Information from patients, primary care physicians, cardiologists, social workers, and registered nurses should be a core source of data. The research should investigate causes and determinants related to hospital discharge plans, follow-up with patients, patients' health behaviors post-discharge (including medication compliance), patients' home environments (including social support). The research should also explore possible associations between frequency of readmission and socio-economic parameters including household income, level of education, employment status and conditions, etc. The research should inform effective strategies to reduce rates of readmissions.	Conduct qualitative research to study in-depth the factors and determinants that contribute to or determine deferential length of stay (rather than the severity of the case). In addition to maintaining accurate collection of REAL data for patients, data should be collected on all health care personnel involved in patient care (e.g., primary care physicians, cardiologists, social workers, and registered nurses). These data should include key health personnel characteristics including race, gender, ethnicity, and training. The research should inform effective strategies to eliminate race-based differences in deferential length of stay.
	Conduct research that combines quantitative and qualitative methods to investigate underlying causes and determinants that increase the risk of heart failure or conditions leading to heart failure. These include behavioral, social, economic, and environmental determinates. The research should focus on the African American population in Galveston County to identify underlying causes and determinants that are specific for this population in this particular geographical region, including a better understanding about how the environments where African Americans live, learn, work, and play impact cardiovascular risks. Results should inform the design and content of effective community education materials and effective strategies to address the upstream factors that contribute to risk behaviors and create environments that increase cardiovascular disease risk.		

Suggested Actions	HEART FAILURE DISPARITY		
	Higher % of combined heart failure among UTMB African American inpatient population	**Higher rates of 6-month readmissions among Af. Americans**	**Longer length of stay among Af. Americans**
Develop and implement means of identifying and tracking patients with or at risk for heart failure	Closely monitor UTMB patients who have risk factors for heart failure (history of acute coronary syndrome, hypertension, heart valves diseases, cardiomyopathy, myocarditis, arrhythmias, diabetes, HIV, hypothyroidism, hyperthyroidism, etc.)[7]. This can be achieved through regular analysis of inpatient and outpatient data to monitor the progression of cases with risk factors to support timely clinical decisions. Focus should be given to the African American patient population.	Use EHRs to monitor and track the episodes of admission of patients with heart failure, for example, by developing a dashboard for heart failure admissions and outcomes disaggregated by race. Thoroughly study the specific (medical and social) reasons of each readmission to inform a customized patient plan of integrated care.	
Improve the patient's discharge plan and develop and implement patient-customized follow up plans	Study the patient medical condition with full consideration of his/her socio-economic status and expected at-home support. This requires well-structured discharge sessions conducted by well-trained health personnel (we suggest a nurse and a social worker) with the patient and family members as appropriate. During the discharge session, the health team should make a preliminary assessment for potential compliance of the patient and expected at-home support based on detailed discussion that considers factors that affect the patient's compliance and readiness/ability to adopt pro-health lifestyle choices. These include household income, level of education, place of residence, employment status and conditions, family situation and expected at-home support, etc. The discharge session should be conducted in a culturally sensitive manner. Such a structured discharge plan should be able to inform the development and implementation of a patient customized follow up plan using inputs from a multi-disciplinary team involving physicians (both primary care physicians and specialist), nurses, care coordinators, social workers, pharmacists, physical therapists, nutritionists, and others as needed [6]. The implementation of the patient customized follow up plan should rely on expanding and strengthening UTMB's outreach programs that utilize community health workers to conduct home visits.		Develop/Adopt and follow evidence-based guidelines to regulate the length of stay and guide the decision of discharge timing. Ideal guidelines would link the length of stay to the medical procedures while highly considering individual variations, social dimensions, and expected at-home support. Shortening the length of stay should not result in more frequent readmissions. Decisions regarding patient discharge should be based on a collective assessment of a multi-disciplinary team and informed by the discharge session as described.

Suggested Actions	HEART FAILURE DISPARITY		
	Higher % of combined heart failure among UTMB African American inpatient population	**Higher rates of 6-month readmissions among Af. Americans**	**Longer length of stay among Af. Americans**
Ensure closer follow up with patients and effectively use available technology	Follow-up more closely on cases of early stage heart failure and pre heart failure conditions through: • Regular follow-up appointments for clinic visits (to the primary care physician or specialist according to need); • Follow-up phone calls by a registered nurse; and • Home visits by community health workers and social workers. This requires strengthening and expanding UTMB's community outreach programs that utilize trained and certified community health workers, social workers, and *promotoras*. Such a home visiting scheme should be able to improve the post-hospitalization management of heart failure and other conditions that may lead to heart failure. Use customized mobile phone messages to remind patients about follow-up appointments. Develop or use available mobile phone application that can be customized for each patient to provide education and promote healthy lifestyle choices pertinent to the case, to remind the patient of physician appointments, times to take medications, dates to request drug refills, etc. Such a mobile application can be customized for each patient during discharge sessions.		
		Use remote case monitoring devices to allow shorter hospital stays and evade avoidable readmissions.	
Enhance access to health care and innovate affordable alternatives	Build partnerships in local communities to enhance access to health care for uninsured and underinsured populations. This would include: • Identifying, mapping and promoting the utilization of available community resources (like community health centers, community based organizations working in health promotion, or social services, etc.); • Building partnerships with these community health care and social services providers and assisting in building their capacities; • Educating UTMB health personnel about these community resources and encouraging two-way referral systems to make best use of all available resources; and • Educating community leaders to act as health promoters.		
	Expand telehealth services to provide timely and more affordable options for health services. While Telehealth does not equate free access to health care consultation services, it could be cheaper than clinic visits (especially when considering both direct and indirect costs). Plans should consider the limitations of telehealth, especially the lack of direct relation between patients and providers, the associated liability for providers, and difficulties associated with filling drug prescriptions over the phone [8].		
	Create and disseminate evidence that supports policy alternatives to expanding Medicaid. Offer patient navigation services, and support patient enrollment through the Health Insurance Marketplace or in Medicaid.		

Suggested Actions	HEART FAILURE DISPARITY		
	Higher % of combined heart failure among UTMB African American inpatient population	**Higher rates of 6-month readmissions among Af. Americans**	**Longer length of stay among Af. Americans**
Enhance preventive measure to decrease the incidence of heart failure and conditions leading to heart failure	Among many other measures, the project team recommends: • Facilitating constructive policy dialogue among relevant stakeholders to enforce regulations on unhealthy food, tobacco products, etc. This would include enforcing implementation of international codes and conventions (e.g. Tobacco Convention). This would also include encouraging voluntary action by corporations and industries (e.g. the 'National Salt Reduction Initiative' seeks to get large food corporations to voluntarily agree to gradually reduce amount of sodium in their products);[9] • Reorienting public health systems to strengthen their preventive programs (e.g. routine screening for hypertension, diabetes, lipid profile, HIV AIDS, etc.). This should also include programs like 'Help Smokers to Quit'; • Developing and promoting the utilization of health education materials for public. Such materials should be developed in a culturally sensitive manner and presented in attractive designs (e.g. audio-visuals); • Expanding outreach programs that utilize community health workers and *promotoras* to provide health education, close follow-up with patients with heart failure or conditions leading to hear failure, social support through home visits, and facilitation for peer-education sessions and group activities, etc.; and • Better incorporating holistic public health approaches and prevention in the educational curricula for medical students and other future health professionals.		

THE 'FIRST IMPROVEMENT PLAN': ACHIEVEMENTS SO FAR

This section provides a brief update on the progress achieved since the last reports issued in March 2015. The following list includes key achievements for addressing health disparities as suggested by the first 'improvement plan'.

DISSEMINATION AND DIALOGUE

By the end of March 2015, CEHD formally summited the first package of reports, 'Documenting health disparities in the UTMB patient population' and 'Improvement Plan', to UTMB leadership represented by Ms. Katrina Lambrecht, the UTMB Vice President for Institutional Strategic Initiatives.

The reports were later shared and discussed with leadership of relevant departments and units in two of three UTMB missions groups: Departments of Obstetrics and Gynecology (Ob Gyn), Pediatrics, Cardiology, and Endocrinology (Health System); Diversity Council, and Office of Health Policy and Legislative Affairs (Institutional Support)[ii].

On August 18th, 2015, jointly with the UTMB diversity Council, CEHD convened the first 'Health Disparities Leadership Forum'. The Forum's 35 participants included representatives from all three UTMB mission groups (Health System, Academic Enterprise, and Institutional Support), local community-based organizations, UTMB medical students, and county public health department officials. The forum provided a unique opportunity to disseminate the findings of REAL data project while stimulating a dialogue about coordinated strategies and harmonized actions to address health disparities at UTMB and within Galveston County as a whole. A second Health Disparities Leadership Forum will be organized in the second week of November 2015.

BRIDGING SILOS AND EDUCATION

During the last six months, the REAL data project team cultivated relationships and developed new partnerships with several UTMB clinical and academic departments to collaborate on health disparity research.

Jointly with the Department of Ob Gyn, CEHD will design and implement a qualitative research study to investigate the underlying causes and determinants of low rates of breastfeeding among women who give birth at UTMB generally and among African American and Hispanic women in particular (one of the disparities uncovered in the March 2015 report).

Jointly with the Department of Cardiology, CEHD will design and implement large-scale research to investigate associations between heart failure (severity of illness, length and frequency of hospitalization, etc.) and social parameters (e.g. race and ethnicity, socio-economic conditions, place of residence, etc.). The research will utilize UTMB EHRs in addition to population-based qualitative and quantitative studies.

We reached an agreement with the Department of Endocrinology to design and implement two small-scale research studies on 1) physician prescribing behavior for glycemic control in Diabetic patients and 2) possible association between metabolic syndrome and socio-economic conditions.

In early August 2015, CEHD developed an issue brief that summarized findings from the REAL data project team's analysis of UTMB inpatient records. The issue brief was distributed to all participants of the first Health Disparities Leadership Forum as well as to UTMB leadership and other staff.

[ii]Academic Enterprise is the third mission group and includes medical school faculty, many of whom were participants of the Health Disparities Leadership Forum and CEHD-led discussions with clinical departments.

In late August 2015, CEHD, in collaboration with faculty from the Department of Internal Medicine, directed a minimester elective course in the School of Medicine titled 'Beyond Medicine: Social Health and Human Rights'. The course focused on upstream determinants of health, illness, and health disparities. Some of the course materials were inspired by the findings from the REAL data project.

CONVENING DISPARITY COLLABORATIVE

In early June 2015, CEHD convened a working group to prepare for the establishment of a 'Health Equity Collaborative'. The working group included nine members representing different UTMB mission groups. This working group also organized the first 'Health Disparities Leadership Forum'.

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