

HIDDEN DIAGNOSIS: UNMET DENTAL NEED DISGUISED AS SEPSIS

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Ana, a 47-year-old white, Medicaid insured female from a rural community arrives to the emergency room at the Tides Medical Center in Morehead City. Ana presents with fasciitis, severe fatigue and hypothermia; unfortunately, the cocktail of symptoms lead to a death by sepsis.

WHO IS ANA?

Ana Melchizedek. Due to Ms. Melchizedek's residence, Ana travels about 30 miles to receive any medical attention for issues that she perceives to be critical. Ms. Melchizedek is a widow of 10 years, lives alone and has 1 son who lives in Charlotte, NC. She is currently working full-time in a local pharmacy less than a mile away from her home of which she has lived for the last 22 years. Ms. Melchizedek is insured by Medicaid and has received a high-school diploma as well as a pharmaceutical assistant training certificate. Ana has no known underlying conditions and is currently on no medications. Ana is a member of a tight-knit, faith-based, rural community that has a local library, small general grocery store, a pharmacy, and fuel station. The highest average level of education is high school, with a 32% drop out rate. Approximately 42% of the population in the surrounding area is African-American, 10% Hispanic, 56% living in rural areas, and 15% aged less than 18 years. Like many of the rural towns near Morehead City, many communities experience some of the highest levels of poverty in the state and exacerbated rates of health disparities, as it relates to diabetes, cardiovascular disease, obesity and unmet dental needs (HRSA, 2018; IOM, 2011). In addition, many members of the community travel to Morehead City for healthcare, school, groceries, and leisure activities.

WHERE DOES ANA LIVE?

Morehead City, NC. In alignment with their geographic placement, Morehead City has based their economies around 3 main industries, the coastal waterway for marine trades, railroad transportation and commercial fishing. The city has an

attractive tourist site near the coast and is well-known for their rich character and family-oriented living style, but communities consistently face significant healthcare access challenges. Additionally, the city is positioned in a healthcare service area that is federally recognized as both primary care and dental whole-county health professional shortage areas, designated by the US Department of Health and Humans Services (HRSA, 2018). Therefore, many residents living on the outerlying rural towns of the city are placed at higher risks for heart disease, stroke, and unintentional injuries, all of which are potentially preventable (Warshaw, 2017). There is no dentist for about 35 miles where Ana lives.

WHERE DOES ANA RECEIVE HEALTHCARE?

Tides Medical Center. This medical center is a non-profit community hospital that is privately owned, since 1967 and is about 30 miles away from Ana’s home. The center is a 225-bed academic and medical facility that is a leader of the southeast training programs, in that it trains 25-30 family medical residents annually. Tides Medical Center is the leader of 6 sister hospitals, serving the surrounding 10 counties. Tides also manages 4 small rural hospitals, hosting approximately 35 beds. The patient population insurance distribution for those visiting the emergency room in 2018 are displayed in Table 1. Since 2016, Tides Medical Center has seen an increase of patients with sepsis, with opioid misuse being a major source (NACRHHS, 2018).

TABLE 1
Insurance Status of Emergency Room Visits 2018

Insurance Status/Payer	Private Insurance	Medicare (65 Years & older)	Medicaid	Uninsured
% of ER Patients	10%	32%	23%	35%

WHAT HAPPENED TO ANA?

The Hidden Diagnosis. Ana left work on Monday, March 6, 2017 with a headache and earache (left ear). March 8, 2017 Ana began to notice redness and swelling on the left side of her face, but did not investigate further due to her increased fatigue and fever. On March 10, 2017 Ana’s symptoms worsen and a co-worker from her job, Dr. Samuel strongly encourages her to go to the ER as she notices Ana is presenting signs of severe fasciitis. Dr. Samuel drives Ana to Tides Medical Center and she is properly triaged by the nurse and seen by an ER physician. Ana has no other previous symptoms, accept for the persistent earache, which she has been taking Naproxen on a consistent basis to relieve the pain since its onset in early February, 2017. Following the blood tests, Ana is immediately given antibiotics

intravenously, due to her decreased heart rate, hyperhidrosis and hypothermia she was immediately admitted to an inpatient bed.

On the morning of March 11, 2017 two medical residents and the attending visit Ms. Melchizedek during rounds for updates, her symptoms continue to worsen. Dr. Samuel is there during the visit and mentions to the medical team of Ana complaining and moaning about her earache and pointing to her mouth. The resident clears with the attending about the examination of Ana's mouth. To their surprise, an oversized abscess was localized on the left side of her mouth. Immediately, treatment was provided to alleviate the abscess, but the damaging spread of the bacterial infection had infiltrated Ana's bloodstream. Similar to the untimely and tragic occurrence with Deamonte Driver (Otto, 2007; Wall and Vujicic, 2015)). Likewise, Ana's state of severe sepsis ended in her death at approximately 5:20pm on March 11, 2017.

As the medical team reflect on the chain of events, with heavy hearts they disclosed to Dr. Samuel and Ana's son, a death due to sepsis. The medical team, ER physician and CEO are challenged by two things, the recognition of a missed opportunity for appropriate diagnosis and how to reconcile a fatal outcome with a known origin disguised as sepsis.

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