

Executive Summary:

Text Neck: A Modern Spine Ailment

Text neck is the term used to describe the neck pain and damage sustained from looking down at your cell phone, tablet, or other wireless devices too frequently and for too long. TEXT NECK IS A GLOBAL EPIDEMIC! 'Text Neck' is a world-wide health concern, affecting millions of all ages and from all walks of life. Widespread overuse of handheld mobile technology is resulting in a harmful and dangerous physical condition on the human body. It's a risk for some 58 percent of American adults who own smartphones. If left untreated, Text Neck can result in serious permanent damage including: flattening of the Spinal Curve, onset of Early Arthritis, Spinal Degeneration, Spinal Misalignment, Disc Herniation, Disc Compression, Muscle Damage and Nerve Damage.

Our solution is to design, develop, and pilot a user-friendly application that simplifies the process of collecting, interpreting, aggregating, and sharing patient-reported outcomes (PRO) data related to physical function outcomes in the ambulatory care setting. Our application/website will be built using content management system like WordPress for easy maintenance without reoccurring expenditure. Various secure plug-ins will be used for collecting patient reported outcomes that will integrate with existing electronic health records of end healthcare providers. The end user interface will consist of responsive website with social media optimization and will be available for patients on their smart phones/tablets/laptops/web interface.

The application will ask 10 questions based on evidence-based data that help identify the risk for text neck based on symptoms and provide solutions that will be offered to end-users in the form of patients as well as practicing healthcare providers.

Our team has successfully launched a number of healthcare applications namely:

Aorta – Forum for healthcare discussion, <https://aerolib.com/>

AerolibExchange – an online marketplace for physician advisors, <https://myaerolib.org/>

Aerolib total knee arthroplasty risk stratification tools for use for orthopedic surgery readmissions <https://thephysician.org/>

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Business Model

Problem: Text Neck: A Modern Spine Ailment

Text neck is the term used to describe the neck pain and damage sustained from looking down at your cell phone, tablet, or other wireless devices too frequently and for too long.

Scope of Problem

79% of the population between the ages 18 and 44 have their cell phones with them almost all the time—with only 2 hours of their waking day spent without their cell phone on hand. The human head weighs about a dozen pounds. But as the neck bends forward and down, the weight on the cervical spine begins to increase. At a 15-degree angle, this weight is about 27 pounds, at 30 degrees it's 40 pounds, at 45 degrees it's 49 pounds, and at 60 degrees it's 60 pounds. "It is an epidemic or, at least, it's very common," Hansraj, chief of spine surgery at New York Spine Surgery and Rehabilitation Medicine, told The Washington Post. "Just look around you, everyone has their heads down."

https://www.washingtonpost.com/news/morning-mix/wp/2014/11/20/text-neck-is-becoming-an-epidemic-and-could-wreck-your-spine/?utm_term=.d0e8dd23712c

Analysis of the existing market and market opportunity

TEXT NECK IS A GLOBAL EPIDEMIC! 'Text Neck' is a world-wide health concern, affecting millions of all ages and from all walks of life. Widespread overuse of handheld mobile technology is resulting in a harmful and dangerous physical condition on the human body. It's a risk for some 58 percent of American adults who own smartphones. If left untreated, Text Neck can result in serious permanent damage including: flattening of the Spinal Curve, onset of Early Arthritis, Spinal Degeneration, Spinal Misalignment, Disc Herniation, Disc Compression, Muscle Damage and Nerve Damage

Solutions

Prevention is key with a number of solutions namely:

- Hold your cell phone at eye level as much as possible
- Take frequent breaks from your phone and laptop throughout the day. For example, set a timer or alarm that reminds you to get up and walk around every 20 to 30 minutes.
- Rehabilitation is important
- Strengthen core muscles—the abdominal and lower back muscles—to support your upper body, including your neck.
- Learn specific neck exercises with the help of a health professional.

Customers and Users

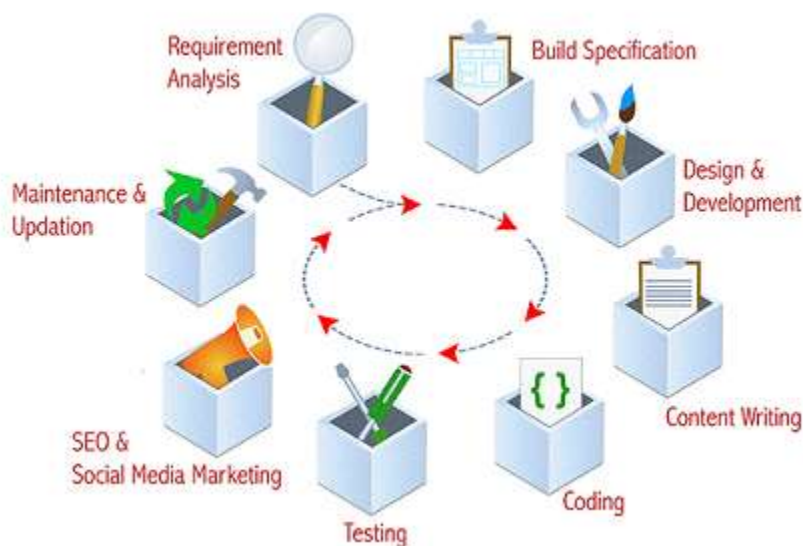
All adolescents and adult patients who present with Upper back pain ranging from a chronic, nagging pain to sharp, severe upper back muscle spasms, Shoulder pain and tightness, possibly resulting in painful shoulder muscle spasm. Our online app/website will allow the collection of data for primary care physicians, pediatricians, internists, orthopedic surgeons and chiropractors to view data.

Development plan and timeline

The application will ask 10 questions based on evidence-based data that help identify the risk for text neck based on symptoms and provide solutions that will be offered to end-users in the form of patients as well as practicing healthcare providers.

We will follow the website development life-cycle that will be divided into different steps. Such bifurcation helps align different activities towards a progressive goal that ultimately culminates in successful project completion. The application/website will consist of review, assessment and analysis with ongoing efforts to merge with existing systems, building the websites to specifications advised by the AHRQ, design and development with approval about layout/navigation on the questionnaire, development of functional prototype/questionnaire, content writing describing symptoms and possible solutions, coding of site using FHIR technical specifications and PROMIS® physical functioning measures provided by AHRQ, testing of application, SEO and social media optimization, maintains an update of website to support our lifecycles.

Key activities and resources required to build the application



Plan to make the application readily available to patients

The application/website will be built using content management system like WordPress for easy maintenance without reoccurring expenditure. Various secure plug-ins will be used for collecting patient reported outcomes that will integrate with existing electronic health records of end healthcare providers.

The end user interface will consist of responsive website with social media optimization and will be available for patients on their smart phones/tablets/laptops/web interface.

Success metrics

Neck impairment Questionnaire: Quality of Life Instrument

1. Are you bothered by neck or shoulder **pain or discomfort**?
2. Are you bothered by neck or shoulder **stiffness**?
3. Are you bothered by difficulty with **self-care** activities because of your neck or shoulder (for example, combing hair, dressing, bathing, etc)?
4. Have you been limited in your ability to **lift light** objects because of your shoulder or neck?
5. Have you been limited in your ability to **lift heavy** objects because of your shoulder or neck?
6. Have you been limited in your ability to **reach above** for objects because of your shoulder or neck (for example, from shelves, tables, or counters)?
7. Are you bothered by your **overall activity level** because of your shoulder or neck?
8. Has the treatment of you neck affected your participation in **social activities**?
9. Have you been limited in your ability to do **leisure or recreational** activities because of your neck or shoulder?
10. Have you been limited in your ability to do **work** (including **work** at home) because of your neck or shoulder?

Risks and Mitigation Strategies

Website/app security will be provided by security plugin for assessing plug-in security, adding privacy policy, terms of service, WordPress updates, compatibility checks, access control the administrator panel, password checks, two factor authentication, limit login attempts, pre-login CAPTCHAs, authenticated URL access restriction, security plug-ins, SSL hosting, encryption and automatic backups, file access hardening configurations and use of security services to safeguard patient entered data.

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