

Preventing Amputation in Patients with Peripheral Neuropathy

**A 4 class recommendation
project on foot wounds.**

by Charles Pryor



Agenda

- ❖ Overview of Peripheral Neuropathy
- ❖ Prevalence of Peripheral Neuropathy
- ❖ Financial Implications
- ❖ The Model
- ❖ The Web Application
- ❖ The Model's Future
- ❖ Questions



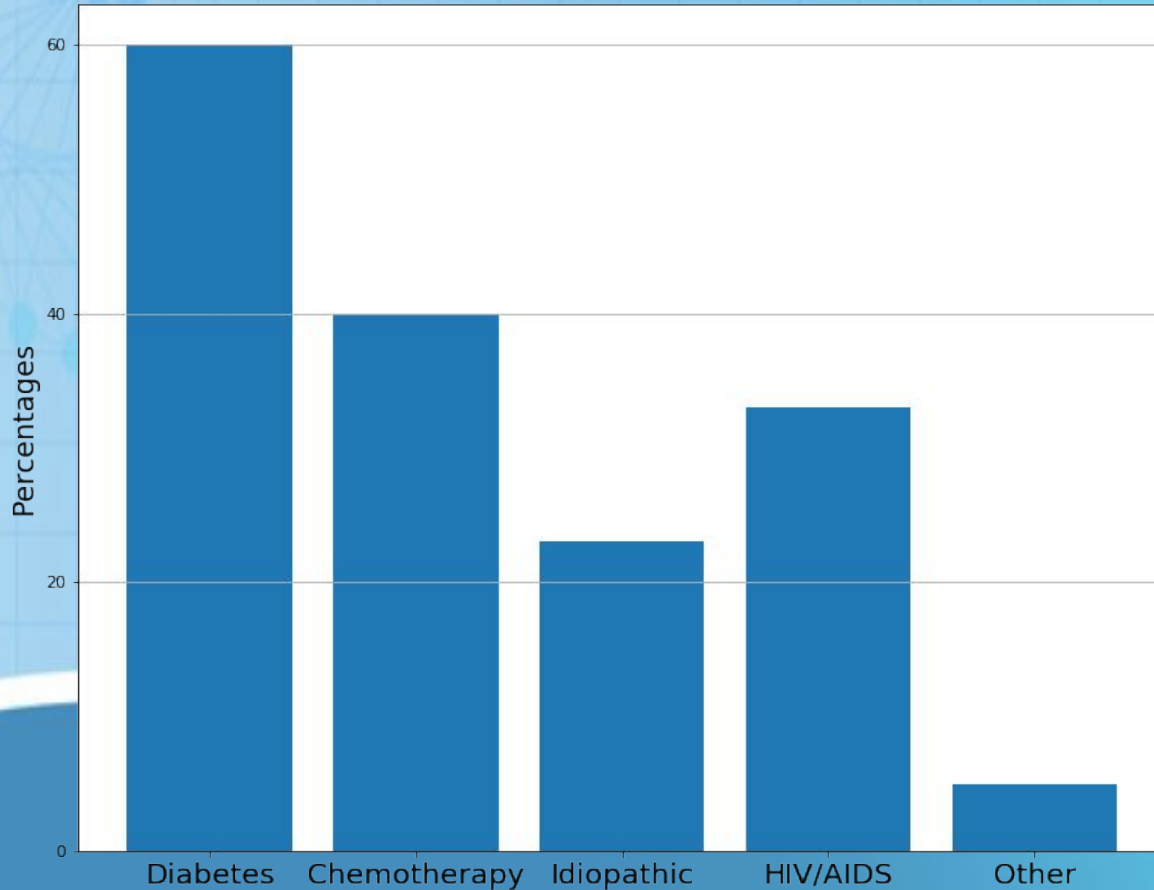
What is Peripheral Neuropathy?



- A condition where nerves are damaged due to various diseases like diabetes.
- Especially common in the lower extremities
- Symptoms include numbness, tingling, a pins and needles sensation, loss of sensation, pain, inappropriate touch signals amongst other symptoms.
- Peripheral Neuropathy affects 20 million Americans.

Major underlying disease contributors

Percentage of Neuropathy Patients by Disease



Non - Traumatic Amputations are on the Rise!

- Every 30 seconds someone in the world loses a leg, foot, or toe due to peripheral neuropathy.
- Lack of adequate healthcare
- Lack of disease education
- Lack of resources
- 85 % of lower extremity amputations are caused by a foot ulcer.
- Amputations are 85% preventable.



The image shows the front page of the Daily Mirror newspaper. The masthead at the top left reads "DAILY Mirror" in white on a red background, with "NEWSPAPER OF THE YEAR" and "Wednesday, July 15, 2015 60P" in smaller text. To the right, the word "EXCLUSIVE" is written in gold. Below the masthead, there are two main headlines. The first, on the left, features a photo of a woman and the text "Peter Andre in High Court..not on honeymoon". The second, on the right, features a photo of Peter Andre and the text "GROUNDED Peter Andre at court yesterday. Far left, as with Katie Price". Below these, a large, bold headline reads "135 DIABETES VICTIMS EACH WEEK HAVE AMPUTATIONS". To the right of this headline, there is a small text block that reads: "BY MARTIN BAGOY. AMPUTATIONS due to diabetes have soared to 135 a week - yet four in five could be prevented, experts say. As Type 2 diabetes rockets with the worsening obesity crisis, the NHS has spent £2billion in three years on amputations that could be avoided with better patient care. Barbara Young of Diabetes UK said: 'We need urgent action.' FULL STORY: PAGES 4&5". At the bottom of the page, a sub-headline reads "Obesity crisis fuels shock surge in disease-related ops costing NHS £2billion".

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EXCLUSIVE

Peter Andre in High Court..not on honeymoon

GROUNDED Peter Andre at court yesterday. Far left, as with Katie Price

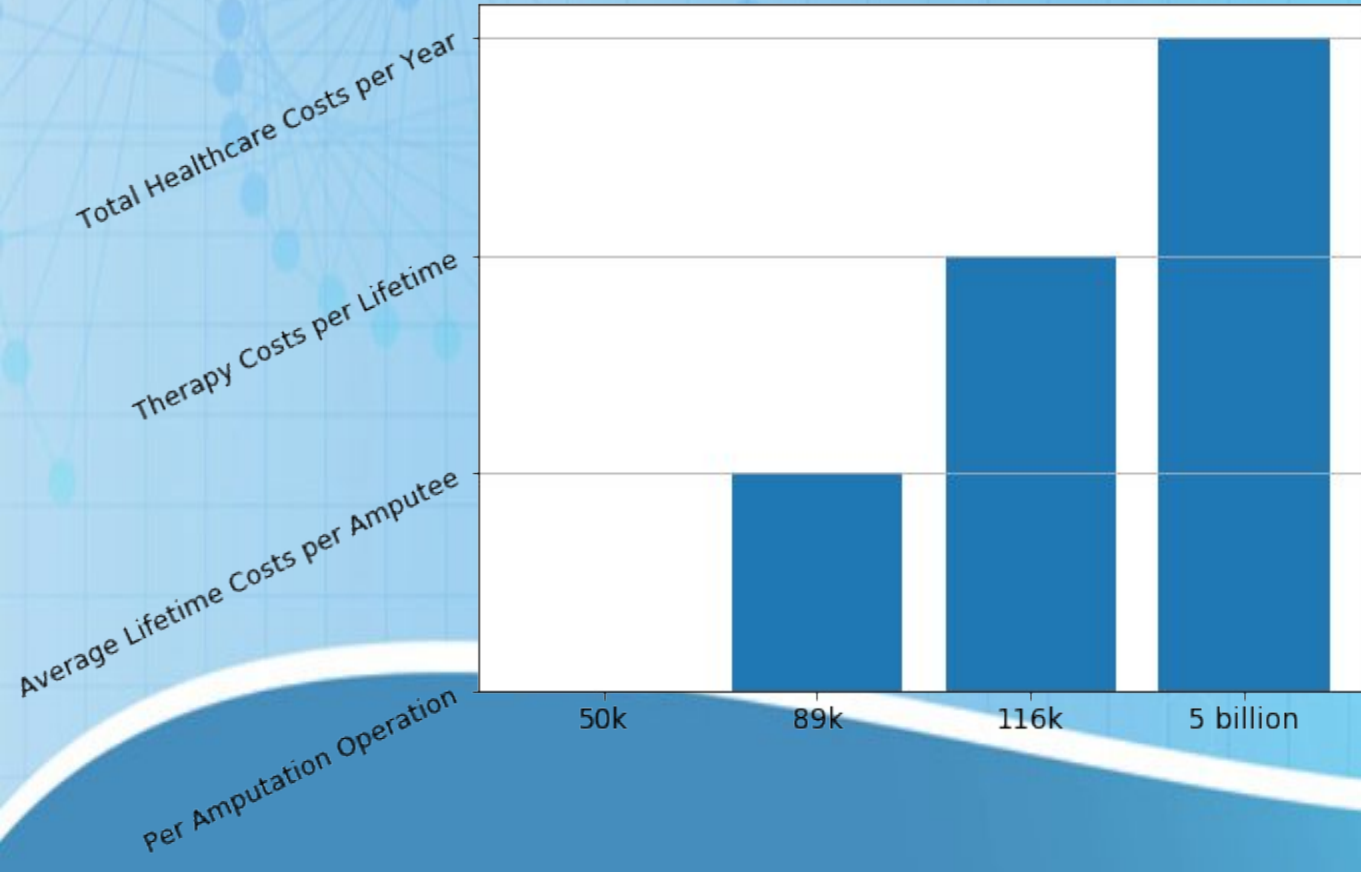
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Financial Impact

Financial Burden on Healthcare



- \$5 billion dollars a year.
- \$116,000 per lifetime of rehabilitation.
- \$89k per person mean.
- \$50k per amputation operation.
- 5 year life expectancy!

The Model

The model has been trained by thousands of photos to classify the foot into four categories:

Healthy Feet



Needs TLC



See a Doctor



Go to the ER immediately



Results/Accuracy

80%

The model will show bias in favor of the next category of severity.

The Web/Mobile Application

- Upload images of the foot in question.
- Return a recommendation regarding the condition of the foot.
- Give general advice on care of the foot at each stage.
- Any picture resulting in the “needs TLC”, “See a Doctor”, or “Go to ER” recommendation categories will have the option to be forwarded to an MD.



The Future.....

- Feed the model more images than 100 podiatrists, orthopedic surgeons, and primary care doctors will ever see in their careers.
- Be a part of the tele-medicine revolution.
- Continue to expand care to those who do not have adequate access.
- Free up valuable in-person medical consult time.
- Mobile app to send pictures to a selected MD.



QUESTIONS?

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Thank You!!!!!!

Important Web Links

[Github Technical Notebook](#)

[LinkedIn Page](#)

[Contact via Email](#)

