**Introduction**

Good morning, ladies and gentlemen.

My name is Michal Paprocki.

I'm a 5th medical student at the Lazarski University in Warsaw Poland and the chairman of the dermatological scientific club operating within Ambroziak Clinic in Warsaw.

**Slide1.**Today, I have the pleasure of presenting my work titled "The use of 3D imaging in monitoring the treatment of port wine stain capillary malformations with laser therapy"

**Slide3.**

Let me start by explaining the topic of our work - the Port-wine stains.  
Port-wine stains (PWT for short) are the most common type of capillary malformations.

They appear during the fetal stage due to somatic mutations and increase in size as the skin grows.

Studies to date have shown the efficacy of treating PWS with a 532 nm large-spot laser, with a median of maximum improvement in treatment (GCE max) of 50% to 70%.

The aim of this study is to evaluate the effectiveness of PWS treatment with a 532 nm large-spot laser over longer periods of time.

**Slide4.**We've gathered data on laser PWS therapy treatment of 64 patients.The treatments were carried out with a laser with a wavelength of 532 nm with a large spot, in practice we use 5-9 mm. We've used 3D imaging to assess the effectiveness of laser therapy.

To assess the efficacy of laser treatment we've used the Global Clearance Effect (GCE) percentage objective rate, which takes into account the changes in colour and surface malformation of PWS.

On the presented graph, we've plotted the relationship between the mean total clearance relative to the beginning and the number of laser sessions.

We found that the first 5 treatments are particularly effective, with an average of 45% improvement. It is worth mentioning that the first 2 treatments are also very effective and are responsible for an average of 30% improvement.

**Slide5.**

To statistically find the plateau, we grouped the visits in buckets based on the visit's number. Using the t-test we've found out the plateau is somewhere between the 6th and 9th session.

We've statistically proven the first two visits are more efficient than the next 3, which in turn, are more efficient than the next 4. There is no statistical proof that visits after the 9th are more efficient than any earlier visits, pointing out that the plateau is somewhere within the last bucket, [SMALL PAUSE] between the 6th and 9th visit.

**Slide6.**

Furthermore, in our work, we've researched the relationship between laser therapy visits, and the time elapsed between said visits.

As can be seen on the x-label of our graph, we grouped visits into buckets based on the nr of days elapsed between visits. We've found that the longer breaks between visits lead to worse clearance, with breaks longer than 180 days leading to negative clearance. Based on our experience, we believe, this anomaly can be explained by Port-Wine stain malformations exacerbating over time.

Moreover, we've used a t-test to statistically prove that breakpoint is around 180 days and chi-squared test to prove a correlation between mean clearance (between visits) and elapsed time.

Given the results of our research, we'd like to recommend a further bi-yearly treatment to counteract the deterioration of PWS over time.