

Health Care in Ireland

Reduce Hospital Wait time and predict Diabetes and Stroke

MIS41270
Group 4



- ⊕ Akanksha.(23201314)
- ⊕ Bhargav Bachanahalli Shekarmurthy (23200186)
- ⊕ Rufus Meera Gomathi Sankar (23200015)

Business Problem and objective	<p>High patient wait times in Ireland have resulted in 17,000 lives lost on waiting lists in the past three years (Irish Examiner, 2022), with a potential 15-year wait to clear current backlogs.</p> <p>Optimize patient scheduling and capacity planning is imperative to reduce wait times and improve healthcare access</p>	<p>300,000 people have diabetes in Ireland (HSE, no date). Preventive programs can reduce this burden by up to 5% (Pierse et al.). Additionally, Ireland sees 6,000 stroke cases annually, costing 1.3 billion euros (Smith et al., 2013).</p> <p>Identifying and screening for these conditions can ease pressure on the healthcare system.</p>
Data	<ul style="list-style-type: none">• IPDC Waiting list by group hospital (2014-20) Ireland.	<ul style="list-style-type: none">• Anonymised patient vitals data (Kaggle,) to classify high diabetic and stroke risk patients.



	Hostpital wait time reduction- Clustering Number of people on wait list- Regression		High Risk Patient identification
Approach	Forecast the number of people on waiting list	Cluster hospitals and specialties based on waitlist characteristics	Predict patients' risk of disease
Outcomes	Resource allocation and capacity planning to optimize patient scheduling at hospital and specialty level		Early identification and preventive interventions for high-risk individuals
Use case	University Hospital Galway	Ireland Public Hospitals	Diabetes or stroke



Hospitals

- **National Orthopedic Hospital Cappagh** has the highest waiting list for inpatient care, followed by **University Hospital Galway**.
- In terms of day care cases, **Royal Victoria Eye and Ear Hospital** has the highest waiting list followed by **University Hospital Waterford**.
- **18 out of 45 public hospitals** are clustered as having “very large wait list” across years.

Hospitals With Highest Waitlist for In Patients



Hospitals With Highest Waitlist for Day Cases

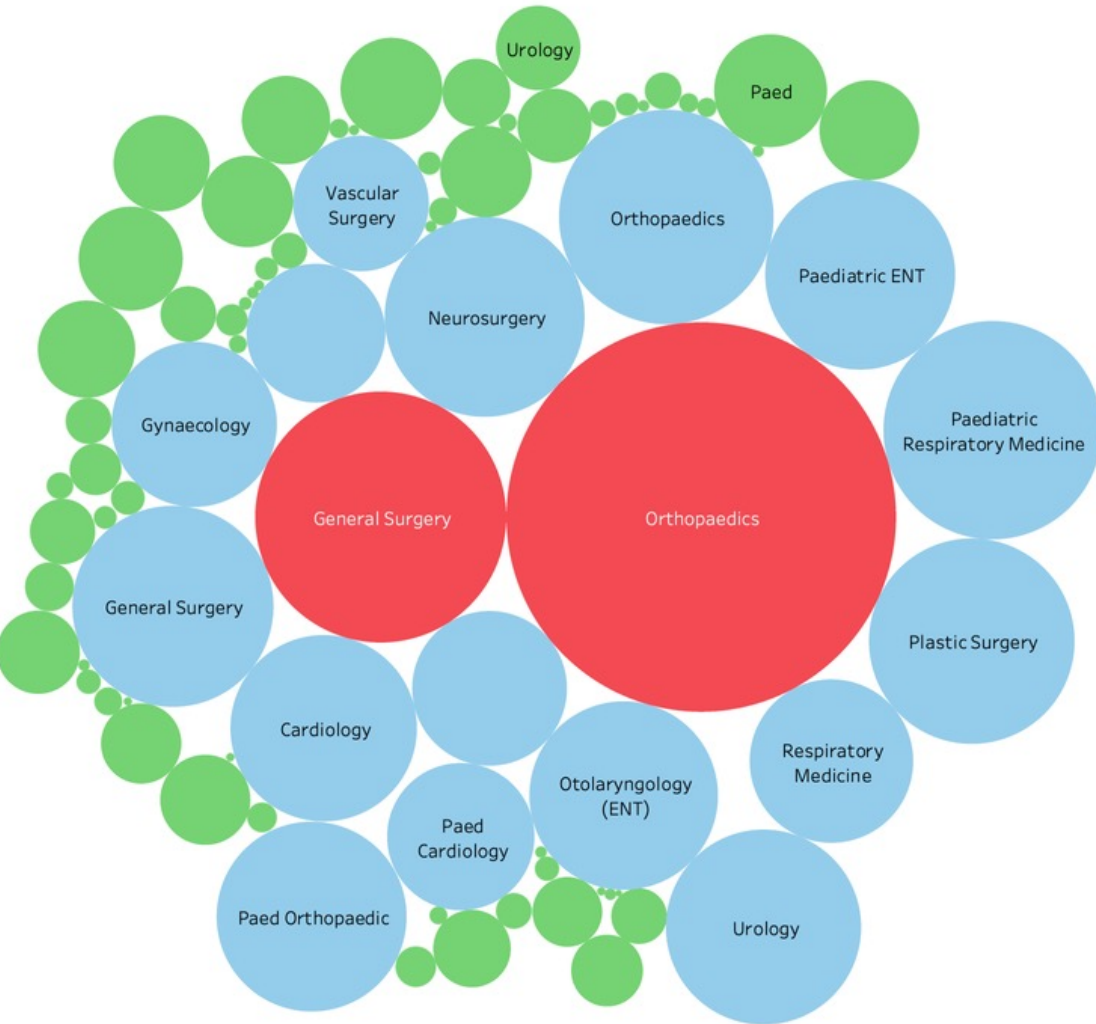


Findings

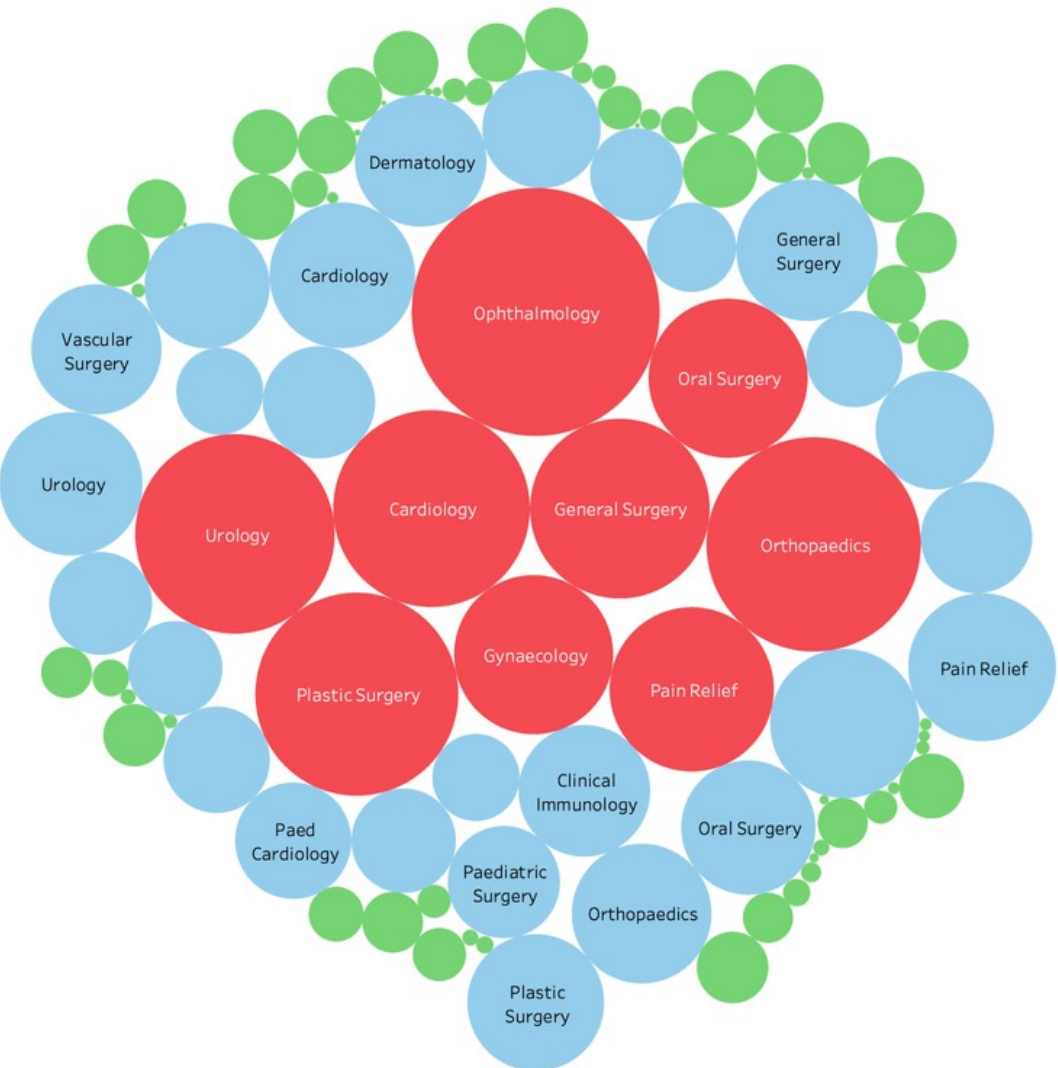
Specialties

- **Orthopedics and General Surgery** have the highest inpatient wait list across years.
- In terms of day care cases, **Ophthalmology, Orthopedics and Plastic Surgery have** the highest waiting lists.
- **9 out of 64 specialties** are categorized as having “very large wait times” across years.
- **Urology and Gynecology, male and female reproductive** health specialties are also categorized under very large waitlists.

Specialties With Highest Waitlist for In Patients



Specialties With Highest Waitlist for day cases



Short Wait List
Large Waitlist
Very Large Wait List

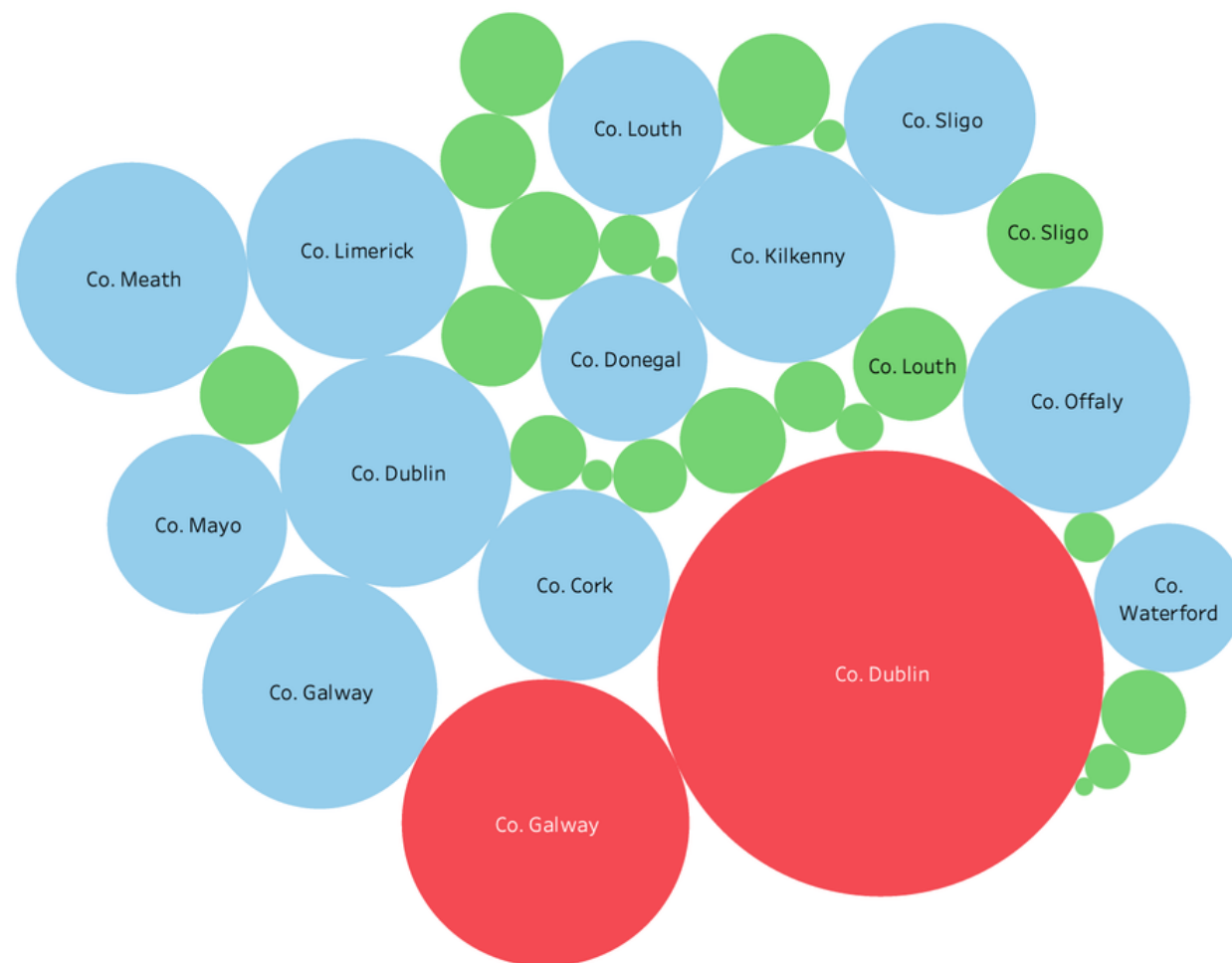


Findings

Counties

- **Dublin and Galway** have the highest inpatient wait list across years.
- For day care cases, **Waterford and Dublin** top the list.
- **11 out of 26 counties** are categorized as having “very large wait times” across years.

Counties with large waitlist for In Patient care



Counties With Highest Waitlist for day cases



■ Short Wait List
■ Large Waitlist
■ Very Large Wait List



Recommendations

Hospitals	Specialties	Counties
<ul style="list-style-type: none">• Increase bed capacity:<ul style="list-style-type: none">◦ National Orthopedic Hospital Cappagh (81-2014, 79 - 2020)◦ University Hospital Galway (644 beds-2014, 668 - 2020)• Share best practices: St. James Hospital in Dublin has “Short Wait List” despite being a big hospital and constant bed count over the years.• Increase diagnostic & laboratory capabilities - for increased diabetes and stroke screening	<ul style="list-style-type: none">• Specialists Recruitment and Retention: Hire more orthopedists, ophthalmologists and surgeons to counter demand for these specialties.• Allocate resources and prioritize interventions in reproductive health care.• Allocate resources to support training and education of healthcare professionals in specialties with high demand.	<ul style="list-style-type: none">• Construct new outpatient clinics to counter high no. of day cases in Waterford and Dublin.• Invest in Tele-medicine and community-based care for high day case waitlist (Waterford & Dublin)



References

- Diabetes [WWW Document], n.d. . HSE.ie. URL <https://www.hse.ie/eng/about/who/cspd/ncps/diabetes/about-the-programme.html> (accessed 4.25.24).
- ehealth Ireland (2014) IPDC Waiting List By Group Hospital 2014 - HSE Open Data (online). Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- ehealth Ireland (2015) IPDC Waiting List By Group Hospital 2015 - HSE Open Data (online). Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- ehealth Ireland (2016) IPDC Waiting List By Group Hospital 2016 - HSE Open Data (online). Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- ehealth Ireland (2017) IPDC Waiting List By Group Hospital 2017 - HSE Open Data (online). Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- ehealth Ireland (2018) IPDC Waiting List By Group Hospital 2018 - HSE Open Data (online). Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- ehealth Ireland (2019) IPDC Waiting List By Group Hospital 2019 - HSE Open Data (online). Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- ehealth Ireland (2020) IPDC Waiting List By Group Hospital 2020 - HSE Open Data (online). Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- FEDESORIANO (2021) 'Stroke Prediction Dataset (online)'. Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).
- Griffin, N., 2022. Consultants hear it could take 15 years to clear current waiting lists [WWW Document]. Irish Examiner. URL <https://www.irishexaminer.com/news/arid-40950080.html> (accessed 4.25.24).
- Griffin, N., 2022. Consultants warn patients at risk of dying as 900,000 on hospital waiting lists [WWW Document]. Irish Examiner. URL <https://www.irishexaminer.com/news/arid-40939085.html> (accessed 4.25.24).
- Pierse, T., O'Neill, S., Dinneen, S.F., O'Neill, C., 2021. A simulation study of the economic and health impact of a diabetes prevention programme in Ireland. Diabetic Medicine 38, e14540. <https://doi.org/10.1111/dme.14540>
- Smith, S., Horgan, F., Sexton, E., Cowman, S., Hickey, A., Kelly, P., McGee, H., Murphy, S., O'Neill, D., Royston, M., Shelley, E., Wiley, M., 2013. The future cost of stroke in Ireland: an analysis of the potential impact of demographic change and implementation of evidence-based therapies. Age and Ageing 42, 299–306. <https://doi.org/10.1093/ageing/afs192>
- TEBOUL (2021) 'Diabetes Health Indicators Dataset (online)'. Available at: <https://www.irishexaminer.com/news/arid-40939085.html> (Accessed 20 April 2024).



Thank you!

