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# TALLAGHT INDOOR HOSPITAL MAPS

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## Executive Summary

Tallaght Hospital is the first hospital in Ireland to produce an indoor map for patients and visitors. The map enables patients and visitors to find hospital locations without experiencing any of the stress and anxiety associated with becoming lost or missing an appointment. The map will also enable new hospital staff to adjust to the complex layout of their new work place. When surveyed, 98% of staff felt maps would be a service improvement and 54% of patients felt maps would be helpful. There are also benefits to newly recruited staff, particularly doctors who rotate to new hospitals every 3-6 months, but this improved orientation was not measured. This project is also the first step in a process for developing an indoor navigation app, which requires a map on which to build navigation information.

## Solution

The hospital outline was the starting point for several layout trials before finding a way to fit all elements of a complex building with many floors, entrances and locations onto one A4 page.

There is no dataset for indoor location information. The national patient administration system which produces appointment (location) letters does not carry a location taxonomy. The hospital signage does not exist electronically, and was audited and rendered as a starting location list. The self-check-in kiosks data locations were extracted as a further source and the hospital receptionists recorded 145 requests for further directions as an audit of hospital signage. The author walked around to research services such as public toilets and baby changing facilities. The estates department provided length measurements, and the author timed walking routes for additional information.

The map underwent four types of evaluation: at the desk, with new staff and patients, and with external experts. The desk evaluation used MAPQUAL, the new staff evaluations (15) included a questionnaire and a location test, the new patient evaluation (200) included a short questionnaire sent two days prior to arrival. A graphic designer and a cartography specialist provided expert evaluations.



To minimise spend, the software choice was based on existing application licences and the capability of the software to produce a document that could be easily incorporated into letters, touch screens, printing machines or as handouts.

## Business Challenge

Five map types were produced:

1. One sheet trifold map leaflet handout covering how to get to the hospital and how to get to every department.
2. Three one page maps covering how to get to the hospital and a portion of the indoors (inpatient wards, outpatient department and hospital street) for use with letters.
3. One map fragment designed to be used on the self-check-in kiosks to supplement written directions.

Each of these maps is available to order as a print run from the hospital's internal printing website, and is available on the external website at [www.amnch.ie](http://www.amnch.ie). The map was authorised for use by the executive management team in March 2015 and promulgated for uptake across the hospital. This work was undertaken between October 2014 and May 2015.

## Benefits

The value of this map is to reduce the estimated 18 hours per day spent by hospital staff in redirecting patients. In a survey undertaken when the project commenced 84% of staff surveyed (n=110) felt a map would be a service improvement. 57% of patients (n=175) would have liked a map. The map publishes services to patients for the first time including ward locations and services such as baby changing areas. The new staff provided evaluation of the map which was included incrementally. This enabled all new staff to find their way to Outpatient areas that previously they had considered complex. The patient feedback was mixed between the map being complex and useful.

The map has value in orienting new staff, particularly new doctors who rotate to the hospital in 3 and 6 month batches of 100-150 staff each time. These staff in particular have reported feeling disorientation when being woken in residences during on-call rotas.

The MAPQUAL assessment enabled incremental review and change to the map.

This enabled development of identifiable new hand washing icons which in turn support the mission of the hospital. MAPQUAL provided a useful mechanism for evaluating indoor maps. Further experienced external evaluation was sought out from a graphic artist who helped refine the inset map which had been identified as an issue. An additional external review from a cartographer enabled the author to further simplify and remove unnecessary marks on the map.



The hospital risk register and hospital feedback information was researched for reported issues relating to locations. There were a small number of entries, but the literature search identified that patients who do not find their way having received instructions can feel increased stress, anxiety and even shame and do not make a formal complaint. Similarly when successfully arriving at their destination they do not remember that a map assisted their travel but instead focus on the task in hand. The evidence that maps are a quality improvement will not arise from the patient but from the research on maps.

One unplanned result was to think about introducing a map to the outpatient self-check-in kiosk. This facility enables the patient to check themselves in electronically for a clinic. The on-screen instructions are provided in a variety of languages but the printed ticket showing the route to the destination is printed in English. A map fragment has been successfully put onto a kiosk ticket identifying an interim waiting destination for the patient. Adobe Illustrator (CS6) was used in producing the map and has proved beneficial in reproducing the map in a variety of formats.