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Crisis Café

Using Geographical Information System and Discrete Event Simulation Model to assist evidence based commissioning of a new service

Simon Wellesley-Miller
Information Manager
Devon Partnership Trust

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Crisis Café?

An alternative place for people who are in a mental health crisis to go rather than utilising out of hours, emergency or inpatient services.

Run by the third sector, commissioned by Devon Partnership Trust/NEW Devon CCG.

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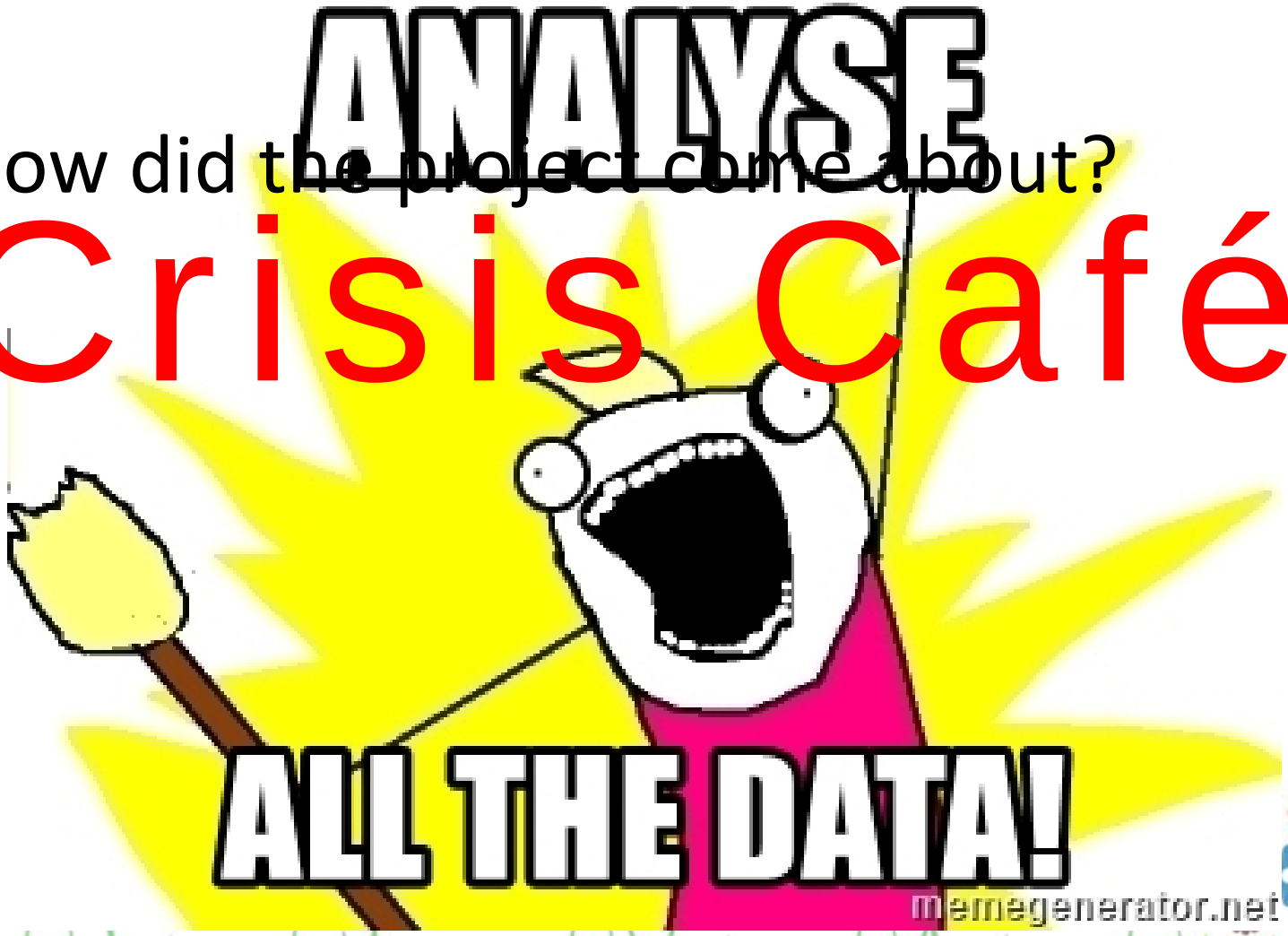
How did the project come about?

Crisis Café



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Crisis Café

Better preventative services in the community to manage the demand for inpatient services.

The ‘Crisis Cafés’ will be open to people from De… …elves to be in mental health crisis, or at risk of this.

Where?

Consideration will be given to maximising access for the whole population, through the locati… Café(s). This includes location with respect to population hubs - tra… and areas of high need.

How much?

The provision of crisis cafes will provide increased choice and some additional capacity to meet the needs of people in mental health crisis and provide early intervention which could avoid escalation of mental health needs.

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The Questions

How much activity can be diverted to Café and what capacity will be needed to achieve a robust service?

- **what** is the demand?
- how to match demand and capacity?

Given the limited resources available, how many sites to commission and how to allocate lots?

- **where** is the demand?
- how to determine suitable catchment areas?

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- Used existing skills from HSMA
- Short timeframe to scope, develop and deliver
- Good(ish) data available
- Bit of Geographical Information System (GIS) (Maps)
- Bit of discrete event simulation
- Important outcomes for Trust and CCG

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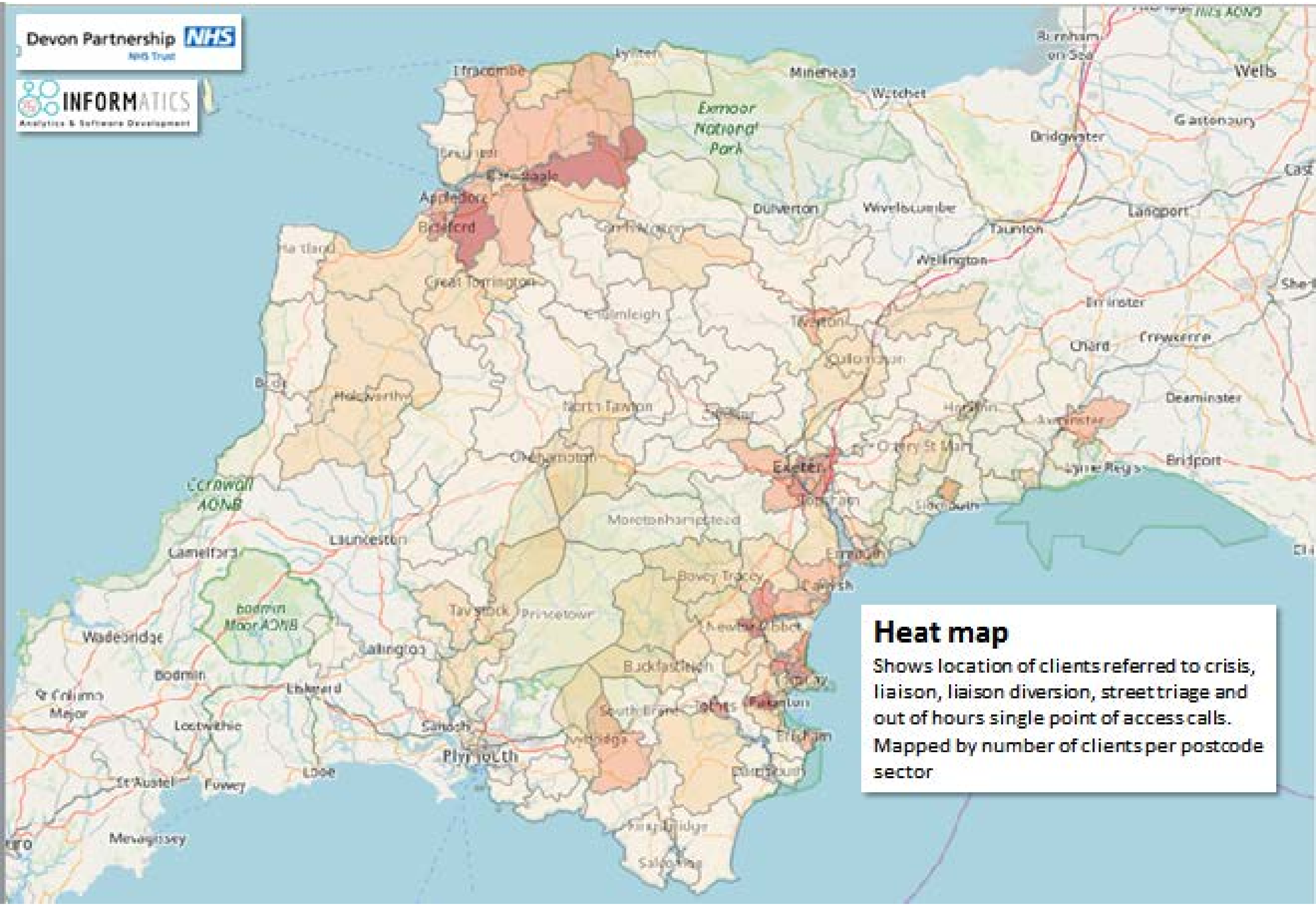
Where to put them?

Various data sources available

- Crisis Resolution and Home Treatment
- Liaison Service
- Liaison and Diversion Service
- Street Triage
- Out of Hours Single Point of Access calls



Heat map

Shows location of clients referred to crisis, liaison, liaison diversion, street triage and out of hours single point of access calls. Mapped by number of clients per postcode sector

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"Provision of a heat map showing referrals to a range of crisis services enabled the project team to quickly visualise the areas of most demand and understand how this demand was concentrated into small or large geographical areas. This allowed us to plan the best locations for the new crisis cafes and understand the distances people may need to travel"

Nikki Bray Senior Commissioning Manager – Adult Mental Health

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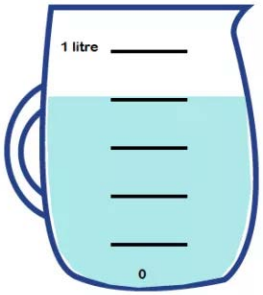
Next Stage

Demand

Capacity



Modelling

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Demand and Capacity Modelling

- Understanding demand
- Determining resource required to meet demand
- Limited resources and so need to have most impact

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Key information and assumptions

Clients would be assessed and diverted from other pathways

Café would be open 6pm – 12pm

Not sure which days or 7 day a week service

Times and places of current referrals into pathways

80% of clients would not be known to services

How long people would stay in Café

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Key information and assumptions

Clients would be assessed and diverted from other pathways

Café would be open 6pm – 12pm

- Met with service leads

Not sure which days or 7 day a week service

- Determined estimate of referrals to be diverted

Times and places of current referrals into pathways

80% of clients would not be known to services

How long people would stay in Café

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Key information and assumptions

Café would be open 6pm – 12pm

- Needed to ensure model was flexible to change opening hours
- Map demand by time of day

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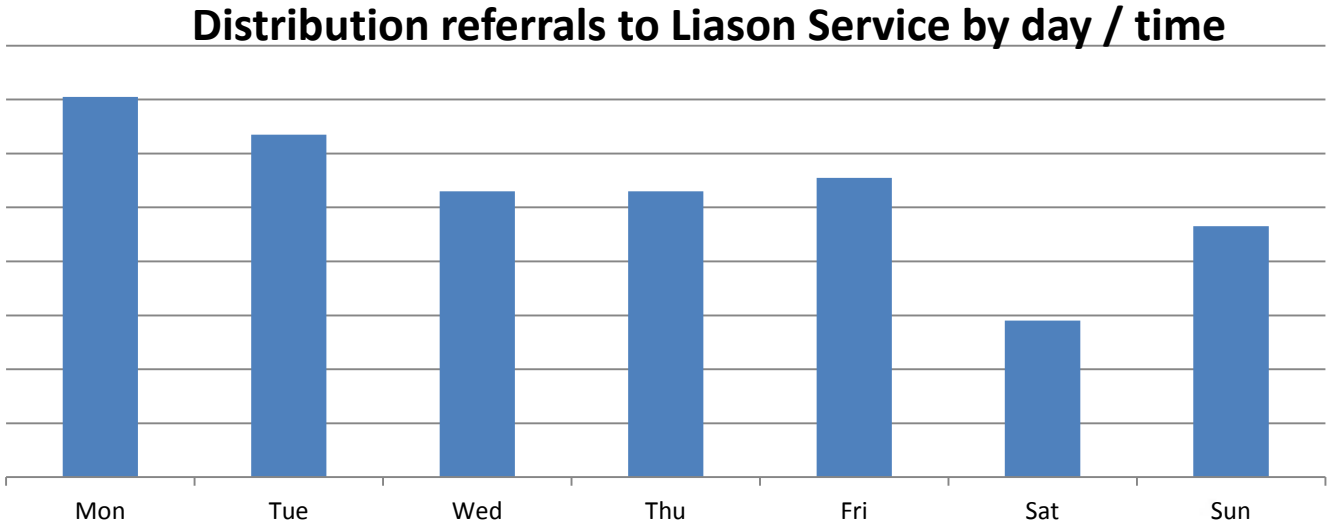
Key information and assumptions

Not sure which days or 7 day a week service

- Analysis of service referrals by day



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Key information and assumptions

Times and places of current referrals into pathways

- Analysis of times
- Breakdown by weekday and weekend
- Breakdown by area

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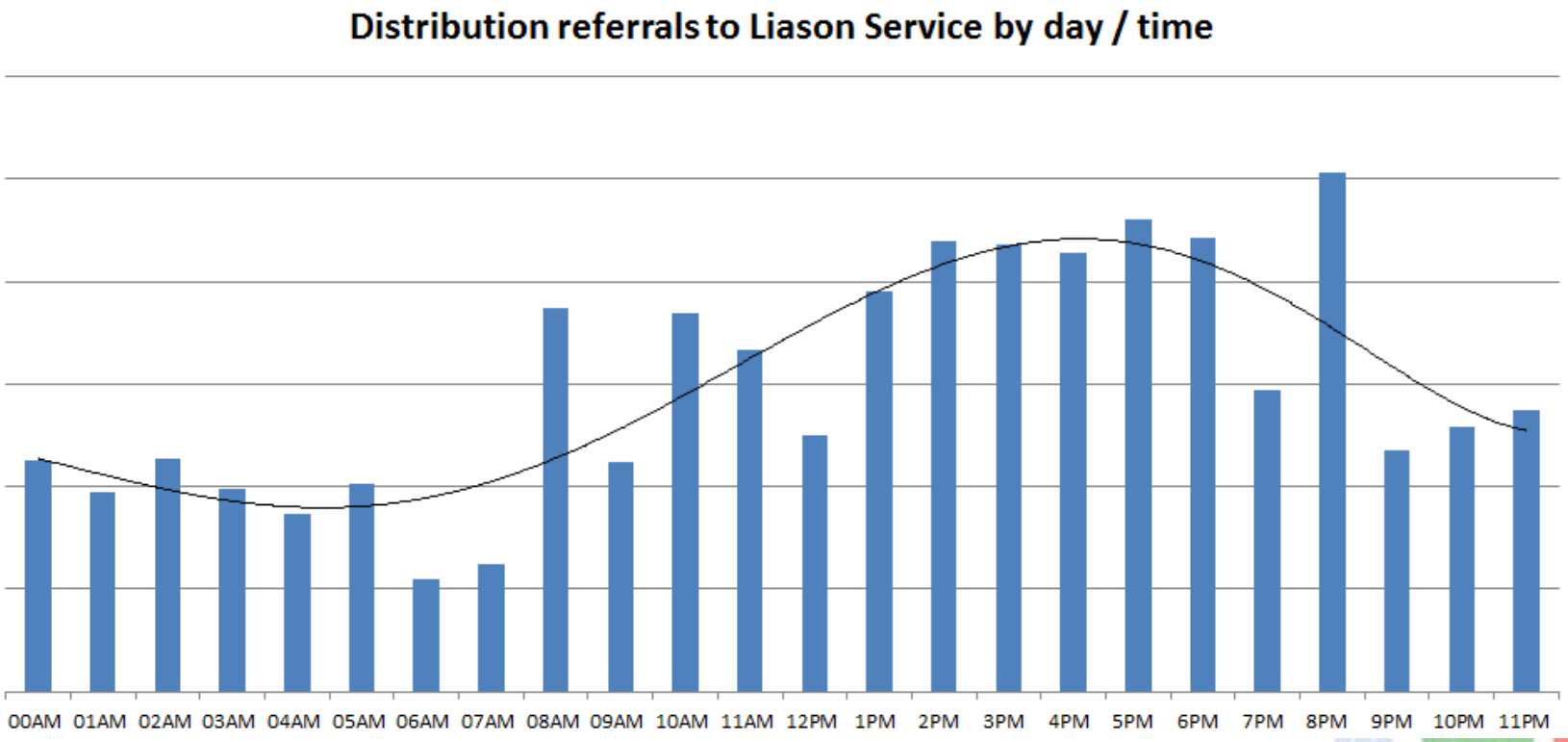
Known key information and assumptions



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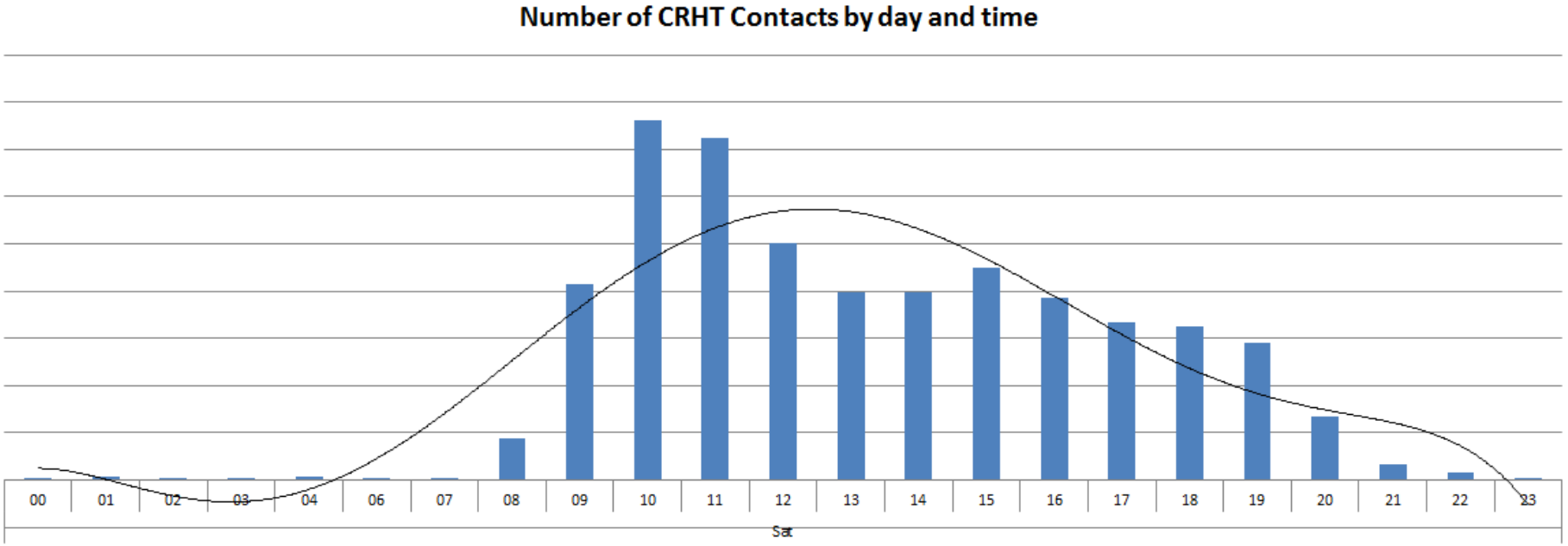
Known key information and assumptions



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Key information and assumptions

80% of clients would not be known to services

- An unknown number of unknowns
- However if 20% is known from that extrapolate the 80% using

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Known key information and assumptions

How long people would stay in Café

- This was estimate by various services
- A minimum of 30 mins, 4hr max and mean of 2hrs

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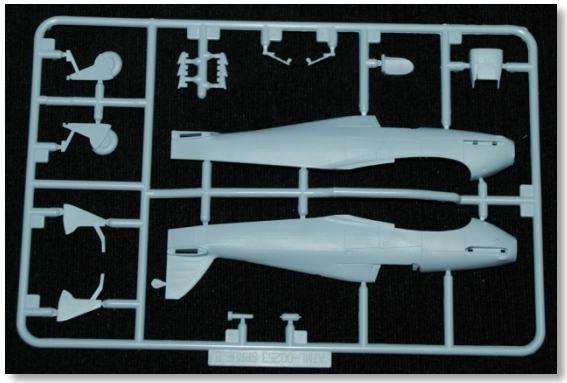
Building the model(s)



- All parts in place to build the model(s)
- Decided on 7 versions of the model
- Localities Barnstaple, Exeter and Torquay
- Separate data and models by locality for weekdays and weekends

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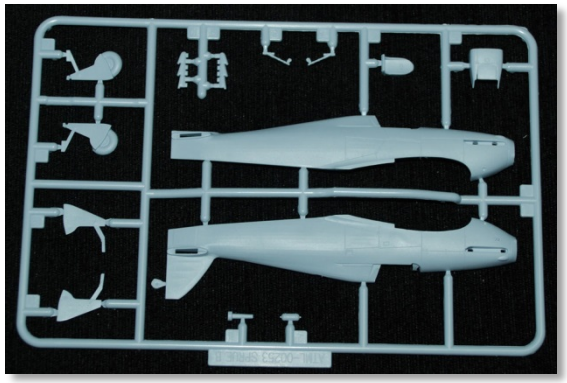
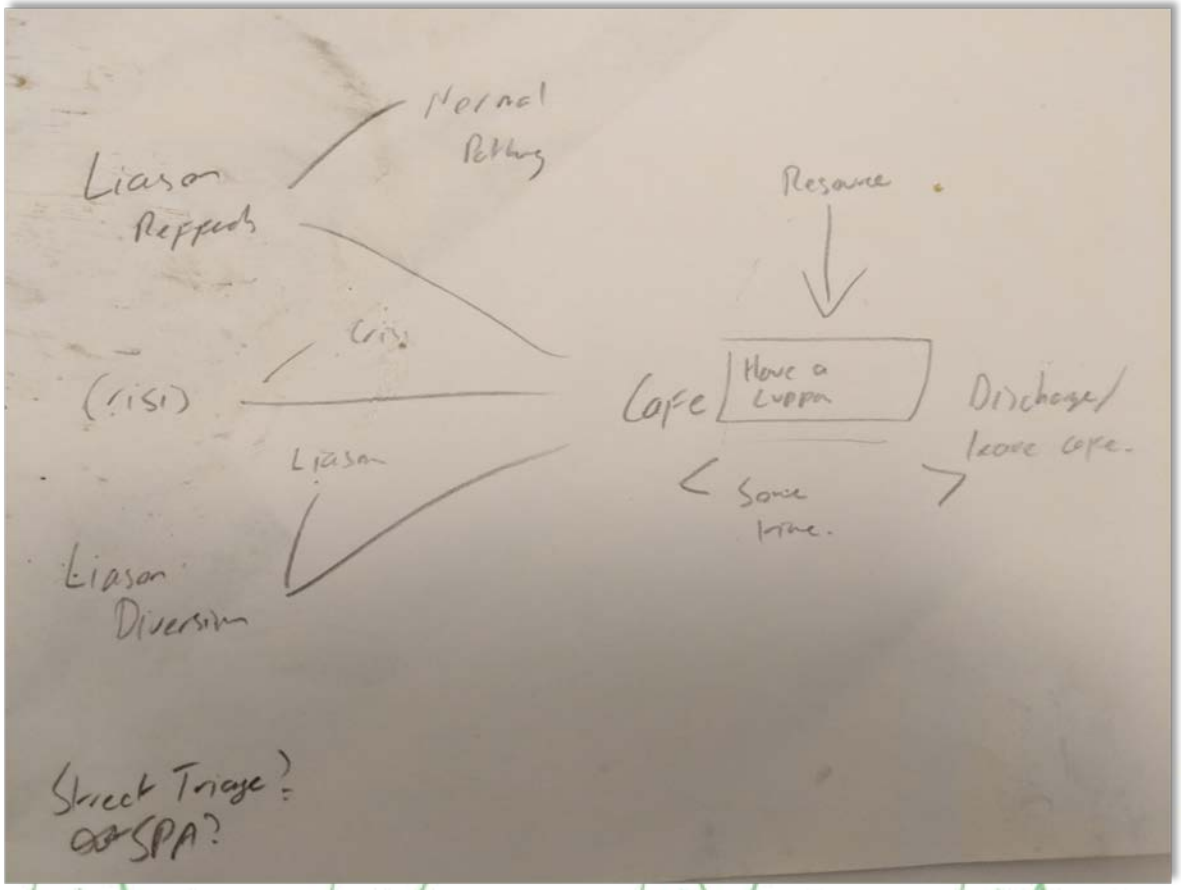
Building the model(s)

- Created a pathway for each service
- Used a time series distribution
- This calculated inter arrival time adjusted by time of day
- Worked out diversion split from pathway



The First Model v1.0



The seventh model

- The least important as far as the data goes
- The other were six based on locality and week/weekend
- The absolutely the most important as far as ‘selling the model’
- The pretty one

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<<Insert Jaam Sim Demo>>

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What did the model do?

- Executing the model showed the totality of demand
- Allowed for resource planning
- Running the 6 models in simulation mode
- Outputs around range and average utility against demand
- Allowed financial decisions around resource

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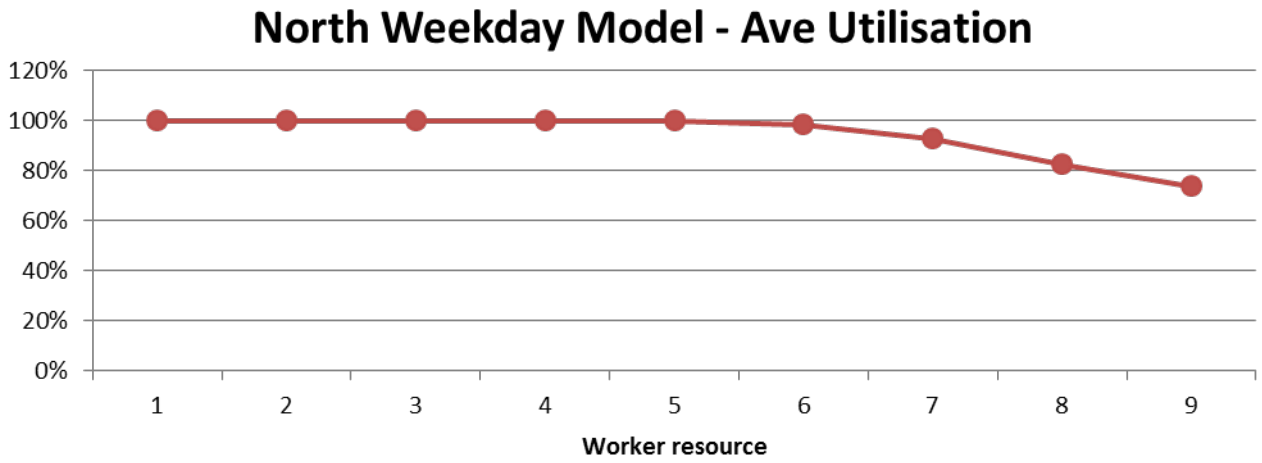
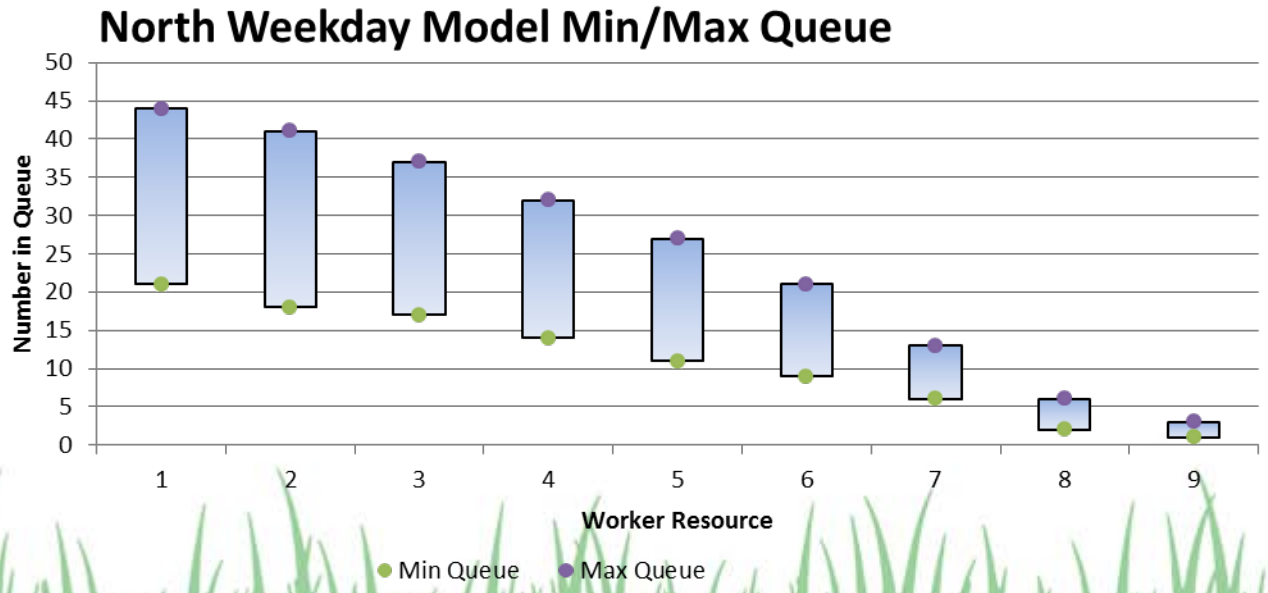
<<insert pretty graph or something to show analysis of log files>>





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"Simulation modelling was incredibly useful in being able to make intelligent assumptions about demand and then plan the capacity of the new crisis café services across the geographical footprint of Devon"

Nikki Bray Senior Commissioning Manager – Adult Mental Health

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Next Steps

Crisis Café out to tender

"We envisage continuing to model demand through the crisis café simulation model as we open the services. This will test out how accurate our assumptions were but also enable us to feed additional real time data into the model"

Nikki Bray Senior Commissioning Manager – Adult Mental Health

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Next Steps

- Demand and capacity modelling shared with senior management team
- Project to model our crisis pathway
- Adapting NHS Improvement demand and capacity modelling
- Created demand for further modelling
  - inpatient and assessment services

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Next Steps

- Demand and capacity modelling
  - demand on my capacity has it's own issues
- Provide training within team around mapping and modelling
- Have a play with Python and R – in line with NHSi
- Make operational research / simulation modelling business as usual

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Next Steps

- Apply machine learning to analysis
- Develop forecasting techniques
- Become a HSMA mentor to my staff in next round

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Next Steps

- Utilise learning to improve services and enhance patient care

- Maintain this amazing network of
  modellers, analysts, mentors and friends

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Thanks to

Thank you

Penchord Team

Each and every one of them

Project Team

Clare

Ryan

Rohan

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Any questions?