

# Coding of Data

Centre for Medical Education Research  
School of Medicine, Pharmacy and Health  
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# Overview of the session

- Coding of data
- NVivo overview
- Hands on practice



# Data analysis



# Data analysis



**Analysis** individually or a team activity

Involves: reading, reflection, consideration of meaning

**Coding of data:** sorting, or organising the data into categories representing similar trends (Glaser and Strauss 1967)

**Data is coded into a range of themes,** also by context, type of respondent

Glaser B and Strauss A. The Discovery of Grounded Theory: Strategies for qualitative research. (1967) Aldine Pub Company; Chicago.

# Software to help

Several types of data management software to help you keep track and manage your data

But....

the work of thinking about, putting the data into categories or themes  
identifying and interpreting trends and what it all means is still done by  
you .... the researcher.

# NVivo

## Overview

- NVivo helps analyse, manage and shape your data
- Manage your data - database
- Especially good for large numbers of data
- Can use it for different data sources e.g. literature searches, **interview transcripts, focus group transcripts**, pictures, videos, documents, voice files, export from web pages
- Allows you to code a word, sentence, question, paragraph once or several times
- You can attach memos (comments) or notes (annotations)
- Allows you to draw diagrams to show connections
- Merge function so researchers can work as a team using

# Glossary of terms used in NVivo

- Sources – your data e.g. transcript, picture, document
- Node (free node) – themes
- Tree node (child node) – sub-theme
- Cases – similar to node - theme
- Sets – where you have grouped data together
- Queries – search tool
- Models – Build visual models e.g. mindmaps
- Classification – attributes to groups e.g. age, gender
- Folders – summary of all the folders
- Memos – thoughts like a researchers note book (can insert dates)
- Annotations – comments e.g. post its

# Using Nvivo

- Saves as you use it but back up your NVivo file
- If in doubt right click on your mouse – this will give you a menu
- F1 for help
- Worth making a folder (node) for ‘good quotes’ thinking about writing up
- If in doubt right click on your mouse
- Data cannot be edited once in node browser
- Auto code transcripts if you have structured interviews
- Casebook – you can link characteristics of each transcript e.g. age, gender etc to provide an overview of each participants demographics



# Practical Session

- Getting started with NVivo
- We have loaded up a transcript on to your machines so that we can practice using it.



# “Telling it” (writing up qualitative research)

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# “Telling it”



- Suggests telling a story, suggest flexibility
- Writing is a continual part of analysis
- Not a once off conclusion
- Don't try to neaten off the “mess”

*This is what I tried to answer, this is what I learned, this is why it matters, and here is a useful account*

# Idiosyncrasies

- In qualitative articles, results (findings) are written differently
- Emphasis is placed on theory
- Findings and discussion are sometimes written as one part / together
- Presentation can be more discursive
- Emphasis is placed on methodology and analysis

# Methodology



**Overview** – “ as little previous research has....., this study adopted a qualitative design (**discuss research design and why**). Data were ... gathered from....These participants were sampled from....

**Setting** – give the broad context: “this study was carried out in the context of... where the organisation was currently developing a new system for medicines management...”

# Methodology



## Participants and sampling

- Of 200 employees, 70 are involved in the new program. I aimed to interview 18 of them.
- Inclusions/exclusions/refusals/non-returns
- In order to elicit different experiences of working with a new medicines management system, I used a purposive sampling framework.

# Methodology

## Sampling framework

	<b>Group</b>	<b>Target</b>
Speciality	Emergency medicine	6
	Oncology	6
	Care of the elderly	6
Within that:		
Staff group	Junior doctor	2 people
	Nurse	2 people
	Pharmacist	2 people

# Methodology

## Recruitment

- HOW did this happen? **In detail!**

## Data collection

- HOW did this happen? **In detail!**
- WHAT was asked?
- HOW was data captured? Recorded?

## Analysis

- What procedures were used? Who else has used them?
- Describe the process. **In detail!**
- Be clear and state unit of analysis



# Method section problems

- No epistemological position (in some journals)
- Weak linkage to research questions
- Explain why samples were chosen
- Specify questions – what you asked and why
- Describe analysis process in detail
- Think more deeply about ethics
  - How were ethical issues mitigated?

# FINDINGS AND DISCUSSION

# Start with what you have

- Refer back to your data, ideas, memos, field notes, meeting notes, 'member checking' feedback – this is ALL data in telling the story
- ANY of these sources can be reported...
  - But make sure the data sources you present are described in the methodology
- Take stock of the whole
- Do it in a team if possible



# Structure

- Consult the journal and other published qualitative articles about the preferred structure
- If “findings” and “discussion” are kept separate, the final sentence of the “findings” section should set up a discussion of them
- This sentence should signal the key themes that will be picked up on to discuss in detail
- Should refer back to research questions
- Write in the past tense

# Presenting themes

- Context is very important in qualitative studies – give it full attention
- Select only the themes/results that relate to your **argument**
- The themes you choose to discuss should relate to the broad questions that motivated the study
- Do NOT organise themes around prompt guides!
- Organise results around argument

# Findings round the argument

- Question      Is physician fatigue a function of variable A, B, or C?  
Structure      organise results around variable A, B, then C
- Question      How does time management training influence fatigue?  
Structure      organise results by types of benefits training provides
- Question      How do pharmacists participate in team meetings?  
Structure      organise results by types of participation

# From data overload to presentation



- Be choosy – your findings section is not a data dump
- After getting data, the biggest task is ‘getting rid of it’!
- Don’t present LOTS of raw data – your job as a researcher is to **interpret** the findings so readers don’t need to wade through detail

# From data to interpretation

## Description

- refers to the “facts” of the cases observed:

## Analysis

- Refers to the breakdown, re-combinations, and reorganisation of data that allow researchers to manage and see them in new ways

## Interpretation

- the new meanings researchers create from their treatment of data.



# Interpreting messages

- You are not “re-telling” the stories of participants – you are transforming these data through analysis and interpretation
- Get to the point! – go **beyond** the data
- Wade through the “thick description” – don’t present it all – this is “undigested”

# Presentation

Make you theme subheadings to do some for you!

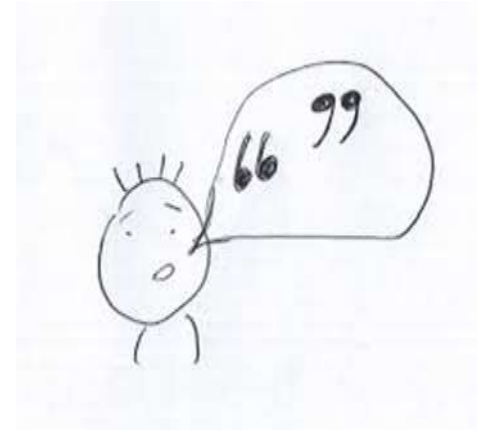
- Single word theme headings (ie, the name of theme) does not describe it's meaning in the context of your study
- Make the sub-heading have a **function in evidencing your argument**
- Without this, your article looks like a report

# Using quotes



- Make quotes meaningful – it's not about showing off the funny or eloquent sections of text
- Select quotes that support your claims or illuminate a particular experience
- Excerpts that are especially colourful or flamboyant can detract from the “theme” and appear more as ‘tests’ of a case

# Using quotes



- Retain context
- Describe the source (participant code, gender, age, role, even setting if it's important)
- Long lists of them are off-putting and appear defensive
- Be careful about changing quotes – get advice on flow

# Example of quote in article

Suffering in silence: a qualitative study of second victims of adverse Events (Ullström et al, 2014) BMJ

## **Theme – emotional reactions**

Many said that they had mentally repeated the sequence of events over and over again:

‘I kept coming back to that day’. (Interviewee No 4, Profession: Nurse, Type of adverse event: Too early discharge from hospital)

Other frequently reported reactions were guilt, shame and the feeling that one’s professional reputation had been damaged:

‘I felt terribly ashamed that I had made a mistake’. (Interviewee No 3, Profession: Nurse, Type of adverse event: Wrong medication dose)

# Using quotes

- Check journal conventions
- BMJ indent their quotes
- Other journals italicize their quotations
  - but some use single inverted comas
  - some don't

# Discussion

- Discuss important findings – don't repeat them
- Demonstrate fit with theory and literature - this validates your interpretations
  - discuss discordance with the findings of others
- How can your data be used in practice and theory development?
- What are the limitations of your study?
- How did you ensure reliability and validity?
  - use these to suggest further research

# Assessing quality and trustworthiness

- **Credibility** (which parallels internal validity)  
*(good practice is followed, participant confirmation is sought)*
- **Transferability** (which parallels external validity)  
*(thick description provides others with a database for making judgements)*
- **Dependability** (which parallels reliability)  
*(auditing, keep complete records to show sufficient data led to conclusions)*

(Guba and Lincoln, 1994)



# Task

# THANK YOU

# Designing a qualitative study from your research questions

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# Your research questions?



1. What factors are associated with optimum self management of diabetes in male and females patients?
2. What factors are associated with the loss of full time employment in patients on haemodialysis?
3. What are the barriers to accessing good health care for people living in rural areas?
4. How satisfied are Teikyo Faculty with their work-life balance?

# Qualitative approach



- Generating theory/models to explain -Grounded Theory
- Understanding a 'bounded' system –Case Study
- Observation of a culture, group - Ethnographic study
- Understanding a lived experience – phenomenology
- Understanding implications for policy/practice – framework
- Understanding from a story - narrative

# Data collection



How best to collect the data?

Interviews - provides detailed views from each participant,

Focus groups- can explore a range of views and strength of opinion

Observation – can observe what is going on, real time

Documents – can identify relevant notes from meetings and policy

# Things to consider: diabetes study

1. Patient demographics: male, female, age, socio-economic status, employment status, house hold members
2. Type of diabetes: Type 1, Type 2
3. Type of diabetic control: good verses poor diabetic control
4. Type of treatment: diet, tablets, insulin
5. Life style: diet, smoker, obesity, social support
5. Treatment plan
6. Definition of successful self management: glucose levels, +++



# Things to consider: dialysis study

**Patient demographics:** male, female, age, socio-economic status, house hold members

## Dialysis

Time on dialysis: months, years,

Frequency: daily, number of hours

Place of dialysis: home, hospital  
(distance from home)



**Life style:** diet, smoker, obesity,

**Employment :** employment status, employment history, type of work, flexible hours



# Things to consider: barriers to good health care in rural communities?

- Definition of a rural community
- Definition of good healthcare
- Availability of healthcare
- Patient demographics: male, female, age, socio-economic status, employment status, house hold members
- Potential barriers: distance, transport, quality of healthcare
- Consequences of poor access to healthcare and poor healthcare



# Things to consider: work-life balance study

- Definition of good work-life balance
- Gender differences, roles, age,
- Working: hours, roles, expectations, demands, rewards
- Family: expectations, demands, rewards, caring responsibilities
- Social life
- Ideal work-life balance



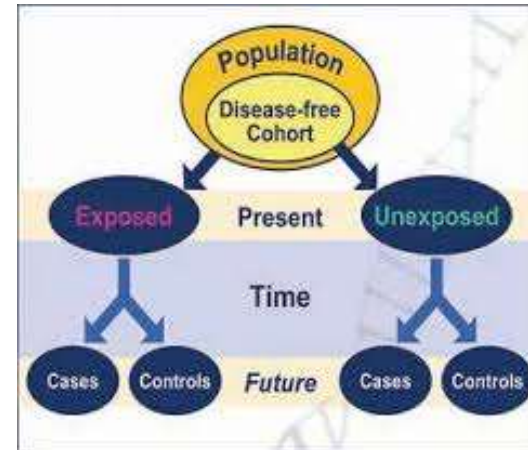
# Sample: who?



- Patients, staff, family
- Purposive/, theoretic sample
- Maximum variation – age differences, gender, different employment, different socio-economic groups
- Convenience/ Opportunistic / Volunteers
- Other quantitative techniques

# Design

- Numbers
- Data saturation
- Timing of data collection
- Retrospective study
- Prospective study
- Comparison groups



# Thank you!

# Questions?

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