National Disability Services

# Slide 1

## Practice Leadership Workshop for Behaviour Support Practitioners

## Collecting Meaningful Data and Measuring Outcomes

Facilitator: David Wragg

Slide 2

Acknowledgement

We acknowledge the traditional people of Australia and pay respect to elders past, present, and emerging.

# Slide 3

## Housekeeping and Disclaimers

* Please step out and attempt to minimise disruption if you need to take a call.
* Feel free to join in and discuss topics, but please depersonalise any information you use.
* The usual conduct around confidentiality of individuals’ personal information applies.
* The content of this workshop is designed to be applicable to a wide range of PBS practitioners and professionals.
* This workshop is intended to give participants direction for their own practice, but nobody will be an expert in data collection at the end of the day.

# Slide 4

**Workshop series**

**Practice Leadership Workshops for Behaviour Support Practitioners**

* Implementing positive behaviour support
* Reflective Practice
* Collecting meaningful data and measuring outcomes
* Supporting the person (and their support network) to be involved in the development of their own plan.

# Slide 5

**About us**

Guidestar provides services in

* Positive behaviour support and training for professionals
* Support coordination
* Psychology services
* Organisational and professional support.

# Slide 6

## Outcomes of today’s discussion

* Improve our understanding of data as it relates to the capability framework
* Gather new ideas on how to use data to inform services and report outcomes
* Discuss quality of life improvements as a performance metric
* Share successes and barriers regarding data collection.

# Slide 7

## COVID-19

The content of this program was developed to be an in-person workshop prior to the COVID-19 outbreak.

Given the change of circumstances, it is anticipated that the conversation may include practitioner challenges and ideas to address the current situation.

While no slides have been prepared for COVID-19, please feel free to discuss the topic in the context of current events.

# Slide 8

## Applied Behaviour Analysis compared with Positive Behaviour Support

# Slide 9

## Applied Behaviour Analysis (ABA)

ABA is concerned with the study of socially significant behaviour under natural circumstances.

**Applied:** Addressing problems to improve people’s life

**Behavioural:** Focused on observable, clearly defined, and measurable events rather than verbal reports or other methods

**Analytical:** Reliably demonstrating cause-and-effect between behaviour and events

**Technological:** Clearly describing techniques to ensure reproducibility

**Conceptually Systematic:** Focus on basic behavioural principles such as reinforcement and stimulus control

**Effective:** Interventions are judged on social importance of change, not just behaviour

**Generality:** Behavioural change endures across people and settings

(Weiss, DelPizzo-Cheng, LaRue, & Sloman, 2010).

# Slide 10

## Positive Behaviour Support (PBS)

An **applied science** that uses **educational methods** to expand an individual’s **behaviour** repertoire and systems change methods to **redesign an individual’s living environment** to first enhance the individual’s **quality of life** and, second, to minimise his or her **problem behaviour.**

(Carr et al. 2002, p. 4)

# Slide 11

## PBS is based on the values and principles of:

1. Inclusion
2. Person Centred Values
3. Comprehensive Lifestyle Changes
4. Lifespan Perspective
5. Ecological Validity
6. Stakeholder Participation
7. Social Validity
8. System Change and Multicomponent Intervention
9. Emphasis on prevention
10. Flexibility with Respect to Scientific Practices
11. Multiple Theoretical Perspectives.

# Slide 12

## Positive Behaviour Support

PBS emerged from:

* Applied Behaviour Analysis

With respect to concepts, PBS is indebted to applied behaviour analysis for the notion of the **three-term contingency**, the concepts of **setting event** and establishing **operations**, and the notions of **stimulus control**. (Carr, 2002, p. 3).

* The Normalisation/Inclusion movement
  + People with disabilities should have access to the same opportunities as others
  + Be included within mainstream society
  + Entitled to their Human Rights.

# Slide 13

## Positive Behaviour Support

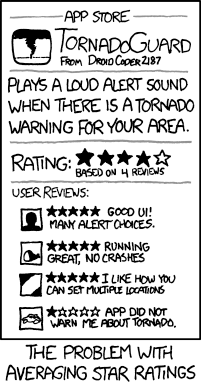
* Social Roles
  + Creating, maintaining and protecting social roles
* Person Centred Values
  + Person Centred Planning: What do I want?
  + Making their own decisions.

# Slide 14

## Thoughts so far

# Slide 15

## Levels of measurement



# Slide 16

## Levels of measurement

Nominal Data: Names or categorizes something

* Examples: Names, diagnoses, days of the week

Ordinal Data: Used for ranking relative to one another, no information on distance between values

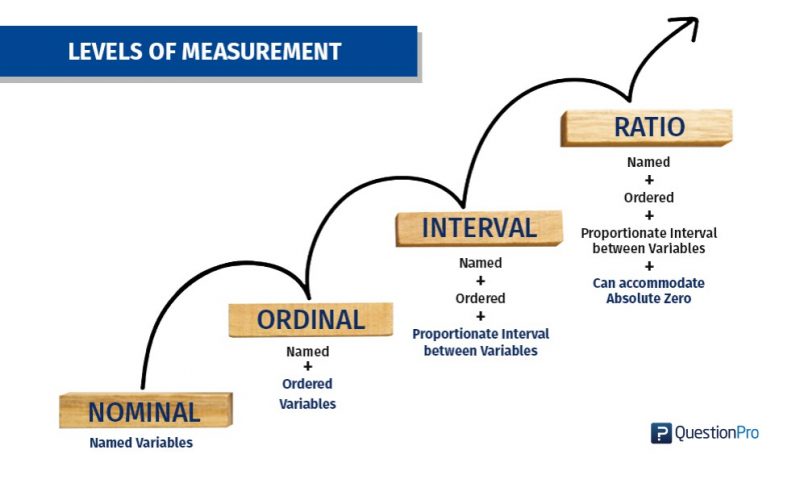
* Examples: Rankings, Likert scales

Interval Data: Steps between intervals are equal, but no meaningful ‘0’

* Examples: Time of day, years, temperature, IQ

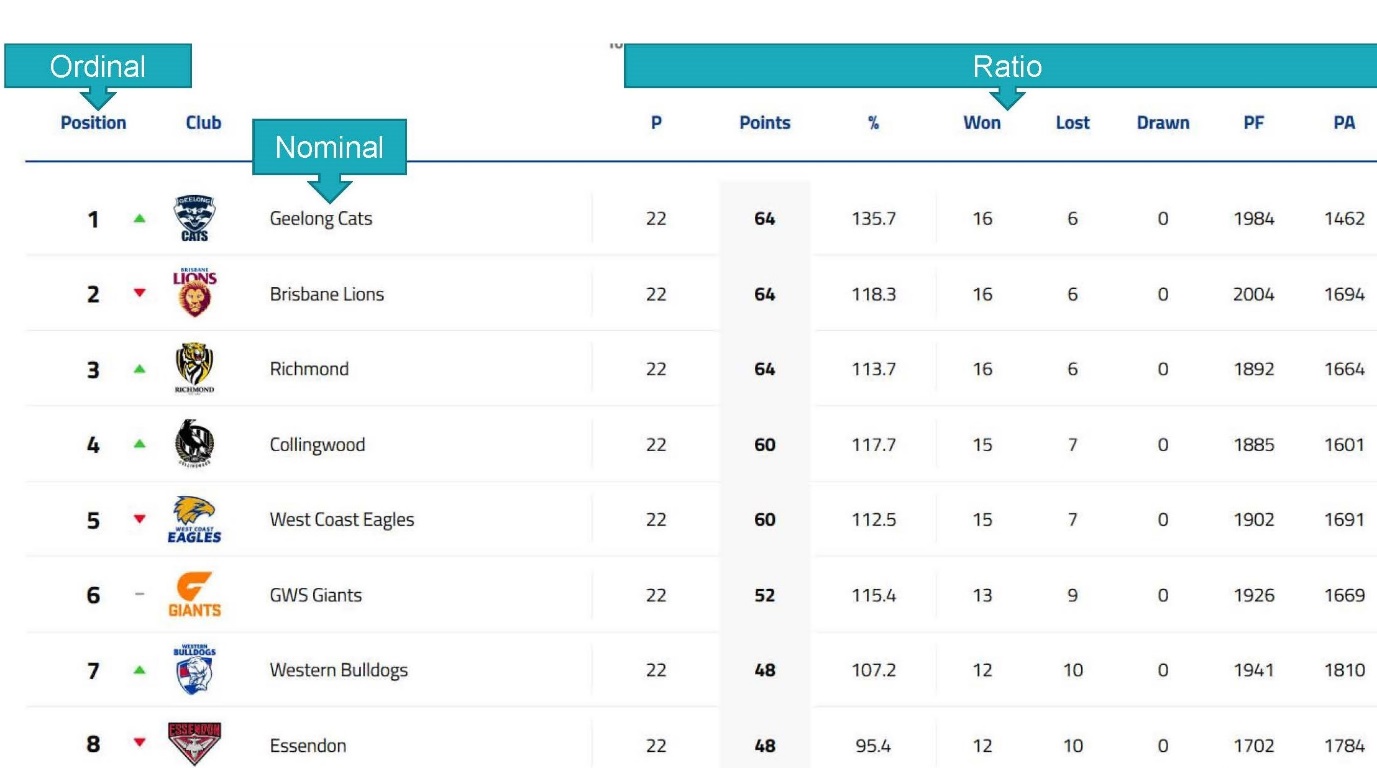
Ratio Data: Has equal intervals and a meaningful ‘0’

* Examples: Elapsed time, number of clients, frequency of a behavior.

(Hanna & Dempster, 2012), (Field, 2013)

[Nominal, Ordinal, Interval, Ratio Scales with examples](https://www.questionpro.com/blog/nominal-ordinal-interval-ratio/%20)

# Slide 17



# Slide 18

## Measures of Central Tendency (Averages)

# Comic picture with stick figure on phone "can my boyfried come along?" 'Boyfriend' says "I'm not your boyfriend. I'm casually dating a number of people" to which the stick figure replies, "you toatally are, you spend twice as much time with me as with anyone else. I'm a clear outlier." The 'boyfriend' replies, "Your math is irrefutable". The reply is: "Face it - I'm your statistically significant other".

# Slide 19

## Types of Averages

### Mean

* Affected by outliers but can give more nuanced information. Cannot be used with ordinal or nominal data (the average of blue and yellow ≠ green)

### Median

* Not affected by extremes, gives the middle value, but not as nuanced. Harder to use with large groups of ratio data. Can use with ordinal and interval data

### Mode

* Most frequently occurring value in a data set, can be used with any level of interval.

# Slide 20

## Types of Averages

### Mean

Calculated by taking the sum of a data set and dividing by number of points in the data set

#### Benefits:

* Can give more nuanced or detailed results
* The type of arithmetic that can be done is much greater

#### Drawbacks:

* Affected by extreme values and outliers; a single extreme value can alter the mean drastically
* Can only be used with interval/ratio data
  + You can’t divide an aggression by an absconding?
  + You can’t divide “sometimes” by “all the time”?
  + What is the average of yellow and blue (please don’t say green).

# Slide 21

## Types of Averages (cont.)

### Median

* Calculated by taking all data points and finding the one that falls in the middle
* In a data set of: 1,1,1,2,3,3,4,4,4,4,4,4,5 (med= 4)
  + In the case of two medians, average two middle values

#### Benefits:

* Not affected by outliers or extreme values
* Can be used with Ordinal Data as well as Int/Ratio data
* Useful to visualize values (in data above, 4 and 1 happen quite often)
* Can help to eliminate ‘noise’ in data

#### Drawbacks:

* Cannot do complex arithmetic or combine with the mean of a data set
* Does not give as much detail when used with Int/Ratio data.

# Slide 22

## Types of Averages (cont.)

### Mode

The most frequently repeated value in a dataset

#### Benefits:

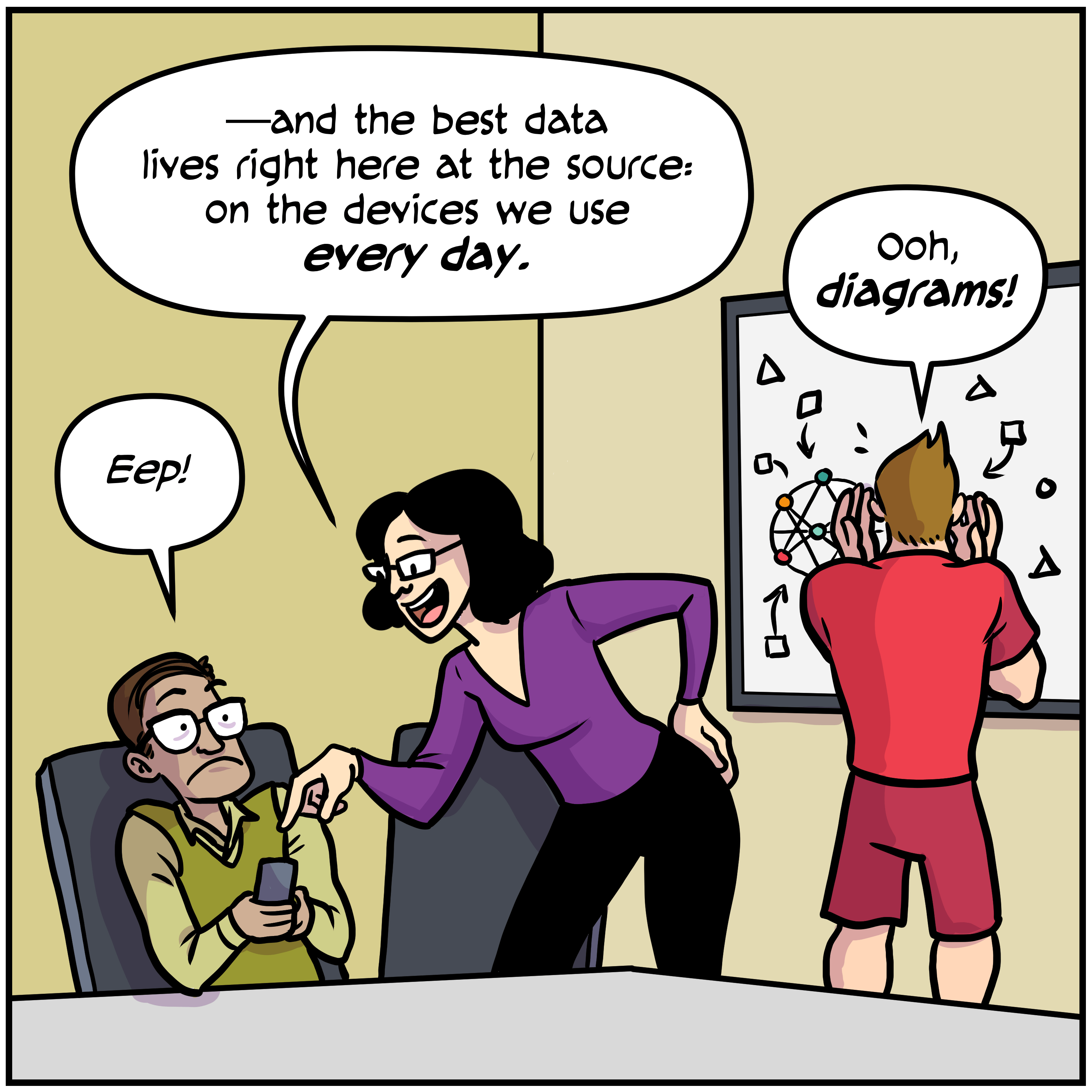
* The only average that can be used with Nominal Data
* Easy and fast to identify

#### Drawbacks:

* Can only be used with interval/ratio data
  + You can’t divide an aggression by an absconding
  + You can’t divide “sometimes” by “all the time”
* May have multi-modal data
  + A dataset can’t have no mode, only 1 or more mode. Therefore data is said to be bimodal, trimodal, etc.

# Slide 23

## Why do we collect data?



# Slide 24

## Why do we collect data?

* Understand or describe a situation
* Find correlations between variables
* Test hypotheses
* Measure changes in behaviour and quality of life
* To meet capability framework criteria.

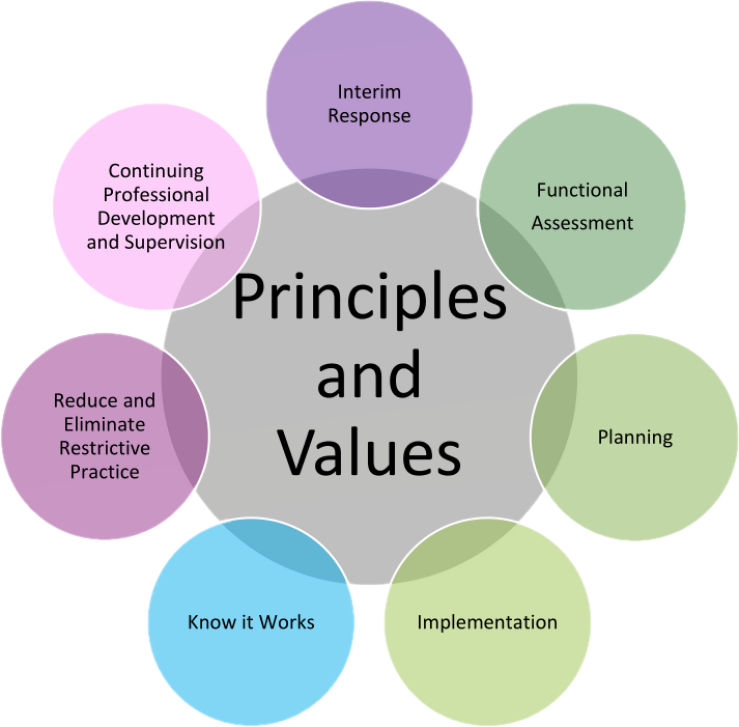
# Slide 25

## Capability Framework and Data

Interim Response

* Evaluate the risk posed by the behaviour to the person (i.e. How frequent or intense is the behaviour? How long does it last?)
* Record and report accurately

Begin by establishing a baseline for the behaviour.



# Slide 26

## Establishing a baseline

Start with an operational definition:

*“*In an operational definition, a behavior is explicitly or clearly defined such that it is measurable, can be identified by two or more observers, and can be identified across time and in different settings or contexts.” (Bicard & Bicard, 2012, p.12)

We can’t begin to measure a behaviour accurately across settings unless we can agree on what is being measured, these concepts are known as **validity** and **reliability**.

# Slide 27

## Establishing a baseline

By having a clear idea of what we are recording, we can then take data on the:

* Frequency: Counting how often something occurs
* Intensity: Often measured using a Likert scale
* Duration: How long a behaviour occurs

For example:

Self-injury presents approximately 4 times per week with an average duration of 12 minutes with a range of 2 minutes to 33 minutes. The impact of this behaviour ranges from red marks on the arm to injuries requiring attention from paramedics. On average paramedics are called every 9 months to attend to injuries resulting from self-injury.

# Slide 28

## Likert scales as intensity measurements

* A Likert Scale can be used to rank behaviour and provide an intensity scale.
* Data collectors may rate a behaviour differently if no guidelines are given.
* Creating a rubric can be useful to increase reliability.

Example:

**Self Injury Rubric**

1. Red marks on the skin.
2. Results in minor abrasion/laceration/bruising
3. Results in abrasion/laceration that requires application of a plaster or bandage
4. Results in significant bleeding
5. Presence of emergency services or professional medical attention.

# Slide 29

## Interim Response and Data

Establishing a baseline not only helps as a basis of comparison.

The process can help to assess risk, prioritise goals, and understand how the behaviours of concern are impacting on quality of life.

# Slide 30

## Capability Framework and Data

Functional Assessment

* Understand the importance of obtaining baseline measures of behaviours of concern, quality of life, and use of restrictive practices
* Understand the importance of data driven decision making
* Systems to collect data from a variety of sources
* Identify antecedents and maintaining consequences

(Table of Principles and Values with seven smaller circles is repeated here from Slide 25).

# Slide 31

## Using data to conduct a functional assessment

* What data or tools can we use to assist in conducting a functional assessment?
* Having detailed and frequent data can help to establish a function.

# Slide 32

## Using data to conduct a functional assessment

What happens if we don’t have data? What can we do?

* Discuss or conduct observations with stakeholders
* Conduct a file review of session notes/IRs/health notes/etc.
* Use assessment tools such as the Questions about behavioural function, Behaviour Problem Inventory, Functional Assessment Interview, etc.
* [NDIS Compendium of Resources](https://www.ndiscommission.gov.au/document/1456).

# Slide 33

## Capability Framework and Data

Planning:

* Use data to inform a theoretical and ethically sound behaviour support plan
* Develop strategies to improve a person’s quality of life.
* Develop strategies to increase the person’s skills and communication
* Develop data collection systems that are objective, understandable, and useable by the key people.
* Develop a behaviour support plan that is supported by data that measures how accurately it is implemented.

(Table of Principles and Values with seven smaller circles is repeated here from Slide 25).

# Slide 34

## Operationalising Person Centred Goals

**Person-Centred Planning**

“Person-centred planning begins when people decide to listen carefully, and in ways that can strengthen the voice of people who have been, or are at risk, of being silenced” (O’Brien, as cited in Sanderson, p. 304)

Key features of a person-centred plan:

* The **person is at the centre,** with the plan emphasising their voice.
* **Families and friends are partners** in planning.
* **Reflects a person’s wishes, aspirations and capacities,** rather than needs and deficits
* **Includes life goals, not goals centred around services.** These should reflect what’s possible, not just be limited to what’s available or what services can manage to achieve
* **Includes a shared commitment to action** and involves ongoing listening and further actions to help a person achieve what they want for their life.

# Slide 35

## Operationalising Person Centred Goals

Often NDIS goals are person centred, achievable, relevant, but vague.

“Mark wants support to access the community, learn new skills, and learn to better manage his emotions”.

# Slide 36

## Operationalising Person Centred Goals

“Mark wants support to access the community, learn new skills, and learn to better manage his emotions”

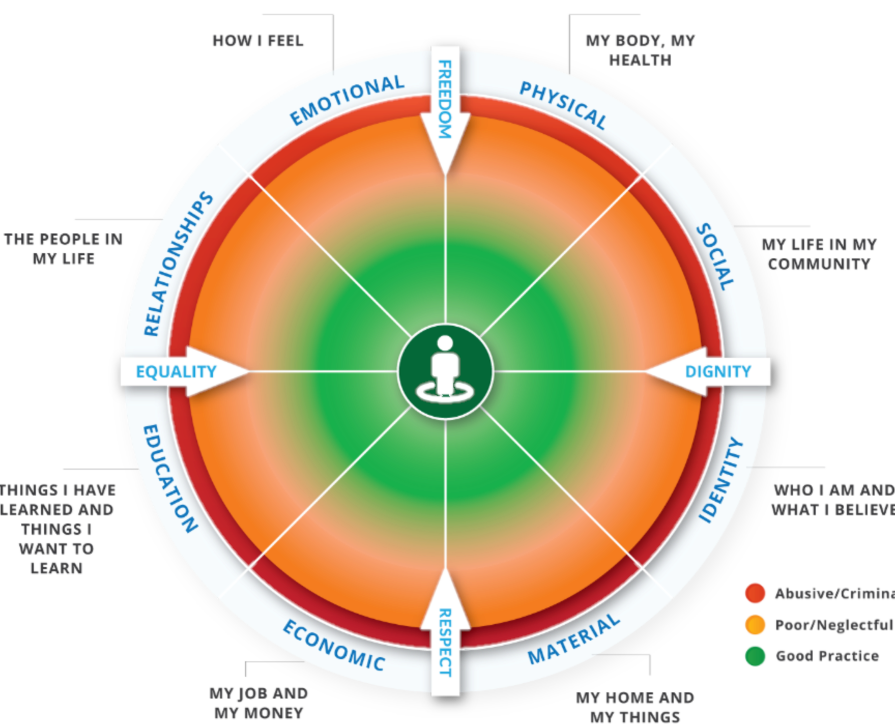
* *“*Mark went out every week” vs. “In February Mark accessed the community 14 times, 7 of these visits were to the Boar’s Head Hotel for Morning Melodies. The average duration of community access shifts was 175 minutes”

What other things could we record?

What questions can we ask about the accuracy of the measurement?

# Slide 37

## Operationalising Person Centred Goals



[Empowerment circle](https://www.nds.org.au/images/resources/resource-files/EMPOWERMENT-CIRCLE-UPDATED.pdf)

# Slide 38

## Operationalising Person Centred Goals

* Mood and wellbeing scales (QOLI, Depression inventories, etc.)
* Health outcomes (Physical stats, number of days in hospital, length of hospital stays)
* Community life (Number of friends, days in the community, membership in community groups)
* Identity (Attendance at religious/cultural events, time spent with people of the same background, number of friends who speak the same LOTE, etc.)
* Material (Adequate accommodation, equipment in good repair, have items of importance to them)
* Economic (Person is working as much as they’d like, enough money to meet needs/achieve goals, accounts not in arrears)
* Education (Attendance/Completion of courses, marks in classes, hours for L’s/P’s)
* Relationships (Friendships, Romance, Social skills education).

# Slide 39

## Operationalising Person Centred Goals

In data analysis and behaviour support there is a tendency to focus on behaviours of concern.

This can mean a practitioner’s success, or plan’s efficacy, may only be measured by a reduction in the frequency, duration, and/or intensity of behaviours of concern.

This can lead to someone who is “easy” or docile being one of the ‘success stories’.

# Slide 40

## Capability Framework and Data

Implementation

* Identify appropriate methods of feedback for those implementing a behaviour support plan
* Support those implementing a behaviour support plan to use the recommended data collection systems
* Support implementation across different environments and contexts

(Table of Principles and Values with seven smaller circles is repeated here from Slide 25).

# Slide 41

## Implementation

Individuals often have different providers which can make it hard to make an apples-to-apples comparison.

Having inconsistent data collection can also introduce a bias.

“Carrie attends Elder Anne day program who requested behaviour support due to the fact that they are submitting upwards of 6 incident reports per day. While conducting initial discussions with the house supervisor at 4 Yavin Road (her accom provider), their data recordings indicate behaviour presents at a rate of roughly 1.5 times per day but no incident reports have been submitted in 6 months”.

# Slide 42

## Reliability and Validity

* Reliability: “Reliability in functional assessment refers to agreement among observers viewing the same behavior at the same time regarding its occurrence or non-occurrence.” (Gresham, Watson & Skinner, 2001, p.169)
* Validity: The extent to which a measure relates to the information being sought. (Price, Jhangiani R., & Chiang, 2015)

# Slide 43

## Capability Framework and Data

Know it works

* Use data to monitor implementation of behaviour support plans in a whole-of-life context
* Track progress of a behaviour support plan using indicators of effectiveness
* Understand systematic monitoring and evaluation
* Have robust and effective ways to measure and evaluate outcomes
* Use data to explain the reason(s) behind a behaviour support plan’s effectiveness
* Apply and interpret measures that capture an increase in behaviours or use of RPs, or decrease in QoL.

(Table of Principles and Values with seven smaller circles is repeated here from Slide 25).

# Slide 44

## Are we achieving the goals we have set?

To determine this, it helps to take data continuously; this allows us to determine if there has been a reduction in behaviour or if reductions have been maintained.

Often, we’re not recording the data we want- times when *no* behaviour is occurring!

# Slide 45

## Are we achieving the goals we have set?

What sort of data can we collect to see to assess the effectiveness in interventions?

* Frequency of behaviour
* Intensity of behaviour
* Duration of behaviour (where applicable)
* How often is someone using replacement behaviour (opportunity data)
* Quality of life measures (e.g. Quality of life inventory, pleasant events Schedule, Health of the nation outcomes survey, frequency of quality of life increasing events, duration of quality of life increasing events, health indicators, etc.)
* Evidence of increased skill (Task analyses are particularly useful here).

# Slide 46

## Capability Framework and Data

Reduce and Eliminate restrictive practices

* Understand that restrictive practices must be justified and are an option of last resort
* Restrictive practices can only occur when a behaviour support plan is in place
* Ensure behaviour support plan is outcomes-focussed, person-centred, and strategies proactively address a person’s needs

(Table of Principles and Values with seven smaller circles is repeated here from Slide 25).

# Slide 47

## Data collection practices and restrictive practices

* What sort of information might a medical practitioner need to reduce Restrictive Practices?
* How can we use data to plan out and reduce restrictive practices?
* What sort of data collection or analysis do we use in our own practice to plan a reduction in Restrictive Practices?

# Slide 48

# Slide 48

## Capability Framework and Data

Continuing professional development and supervision

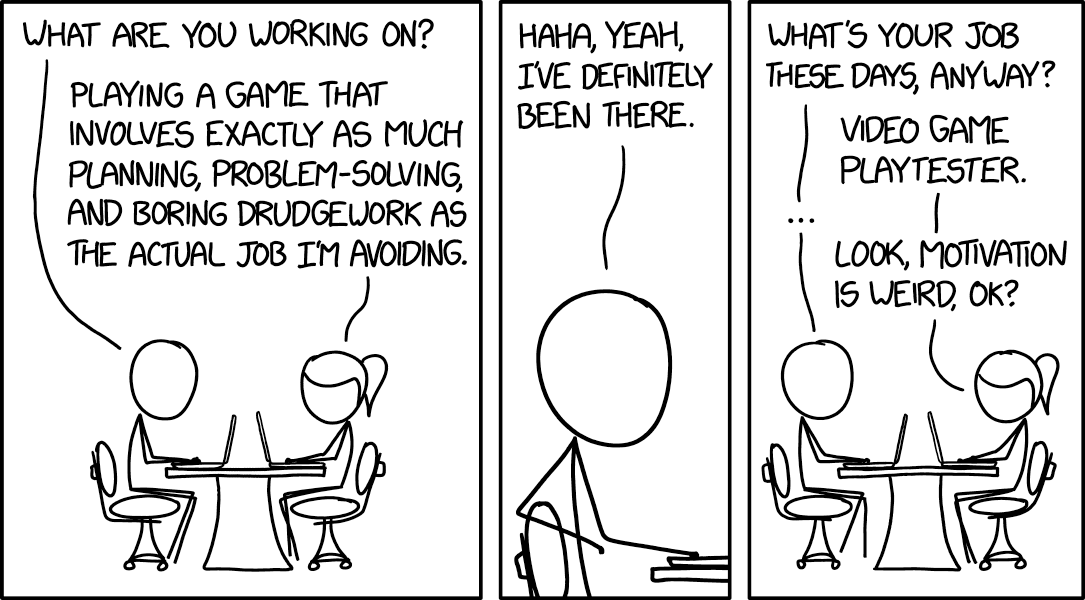
* Conduct regular professional development plans
* Participate in supervision
* Evaluate supervision

When investigating new techniques or modalities, consider the concepts of **validity** and **reliability**.

(Table of Principles and Values with seven smaller circles is repeated here from Slide 25).

# Slide 49

## Barriers to Data Collection



# Slide 50

## Discussion

* How does data collection usually go for us?
* What is the quality of the data we receive? Is it usable?
* What do we currently do to facilitate data collection?
* What feedback do we get from staff when we ask for data?
  + Not enough time
  + Too confusing
  + Already collecting data
  + What’s the point?

# Slide 51

## Sample data

Scenario:

In September 2019 Hayden, a man in his 20’s, encountered several significant life events. Within the span of a few weeks he missed out on a significant promotion, separated from his wife, had a falling out with his best friend and mentor, and suffered significant injuries that required significant medical intervention. Around this time Hayden began engaging in several behaviours of concern including harm to self, harm to others, property damage, verbal aggression, and “unusual” but non-harmful behaviour such as acting in a grandiose manner and dressing in all black.

After his recovery he began associating with a manipulative and anti-social peer group. Although they were not a positive influence, Hayden found himself in a privileged position amongst this group.

In January 2020 Hayden engaged with services, and his team began collecting data on behaviours of concern and wellbeing indicators. Given the complexity of the circumstances, staff indicated they were unable to collect data on all behaviours of concern.

# Slide 52

## Sample data



**Jan-19**  
Self-Injury 47  
Harm to Others 36  
Police presence 3  
Days in hospital 16

**Feb-19**  
Self-Injury 35  
Harm to Others 38  
Police presence 0  
Days in hospital 7

**Mar-19**  
Self-Injury 38  
Harm to Others 38  
Police presence 0  
Days in hospital 0

**Apr-19**  
Self-Injury 34  
Harm to Others 32  
Police presence 0  
Days in hospital 0

**May-19**  
Self-Injury 42  
Harm to Others 40  
Police presence 5  
Days in hospital 0

**Jun-19**  
Self-Injury 32  
Harm to Others 28  
Police presence 0  
Days in hospital 3

**Jul-19**  
Self-Injury 45  
Harm to Others 14  
Police presence 2  
Days in hospital 0

**Aug-19**  
Self-Injury 36  
Harm to Others 22  
Police presence 0  
Days in hospital 0

**Sep-19**  
Self-Injury 17  
Harm to Others 12  
Police presence 0  
Days in hospital 0

**Oct-19**  
Self-Injury 18  
Harm to Others 13  
Police presence 0  
Days in hospital 4

**Nov-19**  
Self-Injury 22  
Harm to Others 10  
Police presence 1  
Days in hospital 0

**Dec-19**  
Self-Injury 19  
Harm to Others 14  
Police presence 0  
Days in hospital 0

**Jan-20**  
Self-Injury 20  
Harm to Others 8  
Police presence 0  
Days in hospital 0

# Slide 53

## What’s the point?



Imagine that, at the August 2019 staff meeting the general consensus is that “Things are getting worse”. What is the data telling us? How can we empower staff?

# Slide 54

## What’s the point?

* Other examples where having ready access to data can be useful?
  + Reporting to statutory and/or funding bodies such as NDIS, Dept. of Justice, etc.
  + Assessing efficacy of interventions (including medication)
  + Provide encouragement to staff or the person we are serving
  + Quantifying data can provide a more objective outlook on all of the above.

Since engaging with services, Christian has spent 14 days in hospital compared with 16 days when the baseline was taken. Total police contact has occurred and averages .84 contacts per month (range 0 to 5 contacts per month); police contact occurs approximately every 2-3 months. Additionally, Self-injury occurred 29.83 times per month on average between Feb 2019 and Jan 2020 (range 17 to 45) compared to a baseline recording of 47.

# Slide 55

## It’s too hard/confusing

* Staff may not have the same numeracy skills as a practitioner and may find the process overwhelming when it is presented to them.
* Staff have several tasks to complete throughout the day and may see data collection as an additional task then distracts from other duties (especially keeping people safe and providing care).
* Data collection tools may be too complex, unwieldy, (STAR data, for instance) or instructions may be unclear.
* There may be too many data collection tools.

Remember: Confusing data collection can introduce bias.

# Slide 56

## It’s too hard/confusing

How do we mitigate resistance to data collection?

* Explain the rationale for data collection
* Understand staff role and tailor data sheets accordingly
* Use providers’ existing data collection, where possible
* Nominate a specific person to have oversight of data collection
* Provide regular feedback with data sheets; staff generally respond positively to having a monthly or quarterly data summary
* Provide coaching and example data sheets
* Be specific in what we need.

# Slide 57

## It’s too hard/confusing

Decorative image omitted.

# Slide 58

## We’re already collecting data

Consider the following:

How quantifiable is the data?

* *“*Went to the park, minimal BoCs” vs. “Went to Handy Reserve from approx. 10:30am – 12:30pm. 2x instances of self-injury, both occurred when passing couple who appeared to be in their 70’s, walking a small dog.”
  + Is what is being recorded useful?
  + Are we collecting too much, or too little data?
  + Is the data generalisable?

Where possible, try to leverage the existing data collection (e.g. Riskman, Session notes, etc.) and provide feedback on what can make them more usable.

# Slide 59

## Data Collection Methods



# Slide 60

## Baselines for behavior including frequency, duration and intensity

**Frequency** is the number of times a behavior occurs. Frequency of behavior can be measured for behaviors that have a beginning and an end (i.e. are discreet). Frequency of behavior is often converted to a rate of behavior by dividing the frequency of behavior by time observed (e.g. in minutes) in ‘event-based recording.’ (Gresham, Watson & Skinner, 2001).

* Can be difficult to capture each instance of a behaviour, and interval recordings can introduce bias into data collection
* Typically used for BoCs, but can be used for fluency in a skill or to record positive behaviours (though opportunity data is a better choice)
* Allows for more meaningful stats and can provide more resolution in data.

# Slide 61

## Baselines for behavior including frequency, duration and intensity

**Duration** refers to how long a behavior lasts and can be measured in seconds, minutes or hours. (Gresham, Watson & Skinner, 2001, p.164).

* Uses ratio data: allows for more meaningful stats
* Again, typically used for behaviours of concern but can also be used for positive behaviour such as attention to a task, time between incidents, etc
* Generally requires some sort of time keeping, particularly in high-stress situations.

# Slide 62

## Baselines for behavior including frequency, duration and intensity

**Intensity** is “A description of the heightened impact of the behavior, e.g., the depth, the force, the strength, the vigor or extreme level of the behavior.” (Wright, Cafferata, Keller & Saren, 2013, Section 4 p. 9).

How can we measure intensity?

* Likert scales (requires a pre-set scale, ordinal data limits stats that can be derived)
* Financial costs associated with behaviour
* Level of charge associated with behaviour: this is most appropriate for forensic settings as it may be unnecessarily stigmatising to a person outside of the forensic setting
* Duration can also be an intensity measure
* Impact on self/others.

# Slide 63

## Interval recording

* Interval recording: “measures record behavior as occurring or not occurring during specified time intervals.” (Gresham, Watson, & Skinner, 2001, p. 163-164)
* Partial interval recording: “a target behavior is recorded if it occurs at any time during the interval.” (Gresham, Watson, & Skinner, 2001, p. 164)
* Whole interval recording: “a target behavior is recorded if it occurs for the entire interval.” (Gresham, Watson, & Skinner, 2001, p. 164)
  + Can be useful when frequency is too difficult to obtain (e.g. using partial interval with an interval of 24 hours)
  + Intervals can be tailored to the person but must be equal (e.g. 1 day or 12 hours is OK, but an interval of 1-shift is irregular)
  + Whole intervals can be used to increase positive behaviours with reinforcement (e.g. “Way to go! You worked for 30 minutes straight so we can take a longer break now!”).

# Slide 64

## Task Analysis

Task Analysis: “the process of breaking down a complex behavior into smaller parts or steps.” (Wolfe, Condo & Hardaway, 2009, p.54).

* Useful for data recording as it allows to show progress toward completing a complex task, rather than a binary correct/incorrect response
  + E.g. In January completed 2/12 steps of a T.A.; in February consistently completed 3/12 steps
* Useful for reinforcement or demonstrating progress in completing a task
* Can give insight as to which subskill needs to be prompted or taught
  + E.g. In a teeth brushing T.A., we know that Stephen can complete steps 1-4 independently, so we focus on teaching step 5 (applying toothpaste).

# Slide 65

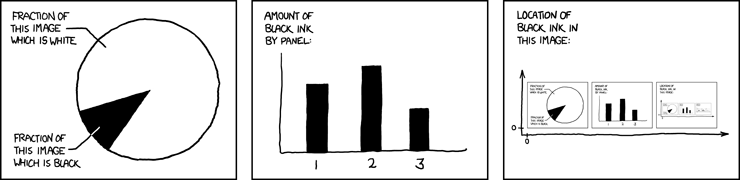
## STAR Charts/ABC Recording

STAR Charts. A model for understanding and alleviating emotional problems comprising of settings, triggers, actions and results. (Zarkowska & Clements, 1994, p. 8-12).

* Can provide detailed information, especially relating to contingencies between stimuli and behaviours
* Difficult to complete regularly
* Can be highly subjective and more prone to the writer’s bias
* A skilled note taker can complete STAR or ABC data that combines quantitative and qualitative data.

# Slide 66

## Collecting Data and Controlling for Bias



# Slide 67

## Considerations when collecting data

* Following a person around to collect data can be dehumanising or embarrassing for a person- particularly in the community
* Contriving situations to collect data can introduce bias or reduce social or ecological validity

How do we ethically collect data?

# Slide 68

## Considerations when collecting data

What can we do?

* Discuss data collection with the person and/or stakeholders and get guidance for how they would like this to occur
* Surreptitiously take data in the community- don’t follow the person around with a pen/clipboard and instead use a small slip of paper, write data on your hand, use a behaviour tracking app
* Limit how much data is taken at once, and identify the most relevant data
  + For example: At the grocery store track the use of social skills or shopping skills, not both
* Beware of introducing bias when choosing when/which type of data to collect.

# Slide 69

## Controlling For Bias

Factors that introduce bias:

* Measurement system such as number of variables being recorded
* Attributes of the observer such as level of training
* Setting where data is being recorded
* Consequences of scoring.

How can we control for these sources of bias?

* Limit how much data is being collected, or rotate what data is being collected
* Familiarise ourselves with potential sources of bias and controlling for them; share this knowledge with staff and design data collection accordingly
* Plan out how and when to collect data.

# Slide 70

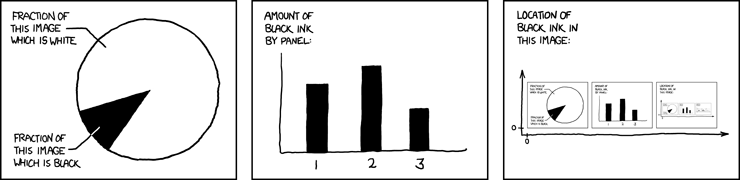
## Controlling For Bias

Specific strategies for controlling for bias:

* Avoid collecting data at the same time, on the same day
* Rotate data collection duties amongst staff so that the same person is not always recording the same thing
* Record data in different settings, e.g. Grocery shopping might alternate data on social skills, behaviours of concern, task analyses, etc
* Ensure staff are trained to collect data in the same way so that interrater reliability is not affected
* Prioritise which behaviours and skills should be tracked; attempt to correlate behaviour with skills being taught.

# Slide 71

## Reporting data



# Slide 72

## Visualising Data: Line Graphs

* Useful for identifying relationships between multiple variables
* Useful for identifying trends across times
* Can show a linear cause and effect
* Independent Variable goes on x axis
* Dependent Variable goes on y axis
* Generally used to show linear/chronological relationships.

# Slide 73

## Visualising Data: Bar Charts

# Slide 74

## Visualising Data: Pie Charts

* Useful for looking at one variable across multiple categories
* Show how categories contribute to a whole
* Identify relative strengths or weaknesses.

# Slide 75

## Tables

* Adds credibility to analysis by providing raw data
* Succinct way to display complex or large data sets
* Breaks up “wall of text” in reports
* Easy to reference in your body
* Can combine bold/italics/underline to emphasize certain values.

**Average frequency per da****y Feb 2017 – Nov 2017**

**Community**  
Aggression 4.83  
Self Injury 5  
Property Dmg 3.8

**Accom**  
Aggression 4.5  
Self Injury 5.5  
Property Dmg 3.8

**Day Program**  
Aggression 3  
Self Injury 4.7  
Property Dmg 4.9

**Family Home**  
Aggression 3.8  
Self Injury **6.2**Property Dmg 4.8

**Work**  
Aggression 4.2  
Self Injury 5.3  
Property Dmg 4.3

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## Tips for discussing data

* Where possible, include a brief intro for each data set discussing:
  + What data was collected
  + How it was collected
  + What periods data was collected (e.g. from Dec 2 until Dec 23).

Concerns about data collection

* Only collected in one setting, period of collection was 6 months, but an entire month missing, etc
* Conscious/unconscious biases (“Narrative data indicates staff are recording thrown objects as both aggression and property destruction”).

# Slide 77

## Tips for discussing data

* Where necessary, identify your analysis methods (“The median value of December mood rankings indicates”)
* Tables and Charts will be numbered, making it easy to refer back to them in body text (e.g. Figure 2 shows) and ensures you don’t have to rewrite what’s in the figure/table
* As with the rest of the document, avoid speaking in the first person and act as though the data and figures are people speaking to you (e.g. “Table 1 shows”, “As shown in figure 3”, “When comparing averages”).

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## Thank you!

If you have any further queries, or would like to discuss other training available, you are welcome to contact me at:

[David.wragg@guidestarlife.com.au](mailto:David.wragg@guidestarlife.com.au)

0456 000 364



# Slide 79

## Tools, templates and resources

Information on defining behaviour and collecting data

[Data collection methods](https://accessibleaba.com/blog/data-collection-methods)

[Define behaviour](https://accessibleaba.com/blog/define-behavior)

Data Collection Sheets

[Earlywood tool](https://www.earlywood.org/Page/556)

[Data collection in autism](https://www.autismclassroomresources.com/data-collection-in-autism-taking-data/)

[Data tracking](https://www.pbisworld.com/data-tracking/)

Integrity and reliability as quality indicators

[Integrity and Reliability youtube](https://youtu.be/XYtsrJg1d6g)

Data Collection types explained

[Data collection types](https://youtu.be/7QquFBD7AM4)

Information on Task Analysis

[Task Analysis youtube](https://youtu.be/o3PveHDRuM8)

[Applied behaviour analysis](https://www.iidc.indiana.edu/irca/articles/applied-behavior-analysis.html)

# Slide 80

## Tools, templates and resources

Google docs data tracking

[Data tracking youtube](https://youtu.be/gcJRVhGrbAY)

Music based discrete trial training

[Music based youtube 1](https://youtu.be/OIsiC0Cf95I)

[Music based youtube 2](https://youtu.be/f7R3Icrut3k)

[Music based youtube 3](https://youtu.be/lL7vMsHHTPg)

Podcast on where to deliver services

[Where can autism services take place soundcloud](https://soundcloud.com/allautismtalk/where-can-autism-services-take-place-and-what-are-the-ideal-environments-dr-hanna-rue#t=6:15)

# Slide 81

## Tools, templates and resources

Behaviour tracking apps (Android):

* [ABC tracker](https://play.google.com/store/apps/details?id=com.gmail.interfer0.abctracker&hl=en)
* [Behaviour Observation Made Easy](https://play.google.com/store/apps/details?id=com.behaviorobservation&hl=en)
* [Behaviour tracker](https://play.google.com/store/apps/details?id=uk.co.brooklynsoftware.behaviour&hl=en)

Behaviour tracking apps (Apple)

* [Behaviour tracker pro](https://www.behaviortrackerpro.com/)
* [ABC Data Suite](http://cbtaonline.com/drupal/products)
* [Behaviour Observation Made Easy](https://www.behaviormadeeasy.com/)

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