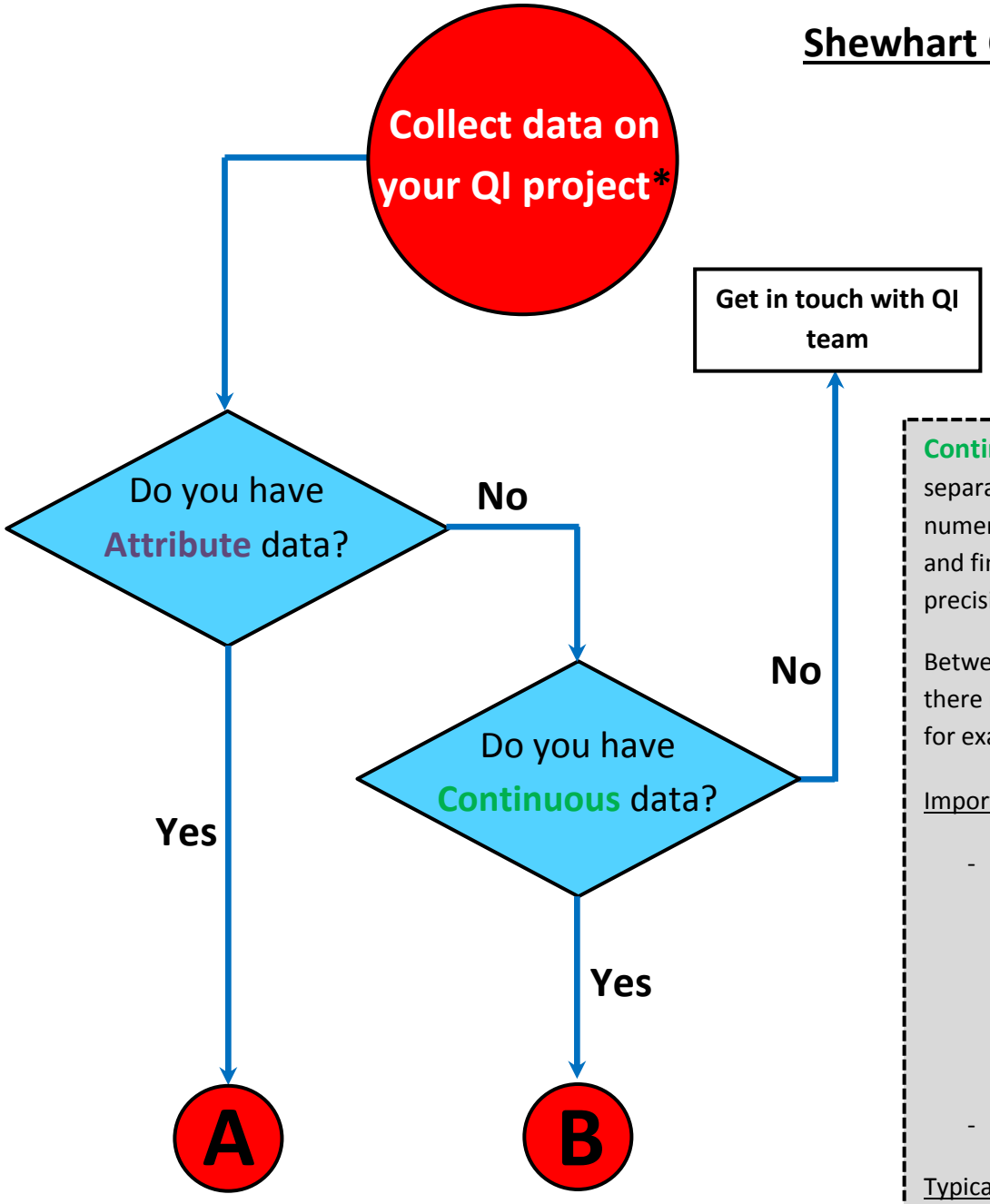
Shewhart Chart Selection Flowchart

*A **run chart** may be used with any type of data. It is often the starting point for viewing data over time when little data are yet available.



Attribute data can only take particular values. There may potentially be an infinite number of those values, but each is distinct and there's no grey area in between. The data can be numeric – for example *number of falls* – but it can also be categorical – such as *pass or fail, male or female, good or bad.*

Important points about **attribute** data:

- It is counted, not measured.
- Data must be whole numbers when collected (can't be fraction or scaled data)
- There is two sub-types:
  - Count data
  - Classification data

Typical examples:

- Number of falls
- Number of violent incidents
- % of missed doses
- % of service users scoring "effective" or "very effective" for patient care

Continuous data is not restricted to defined separate values, but can have almost any numeric value and can be subdivided into finer and finer increments, depending upon the precision of the measurement system.

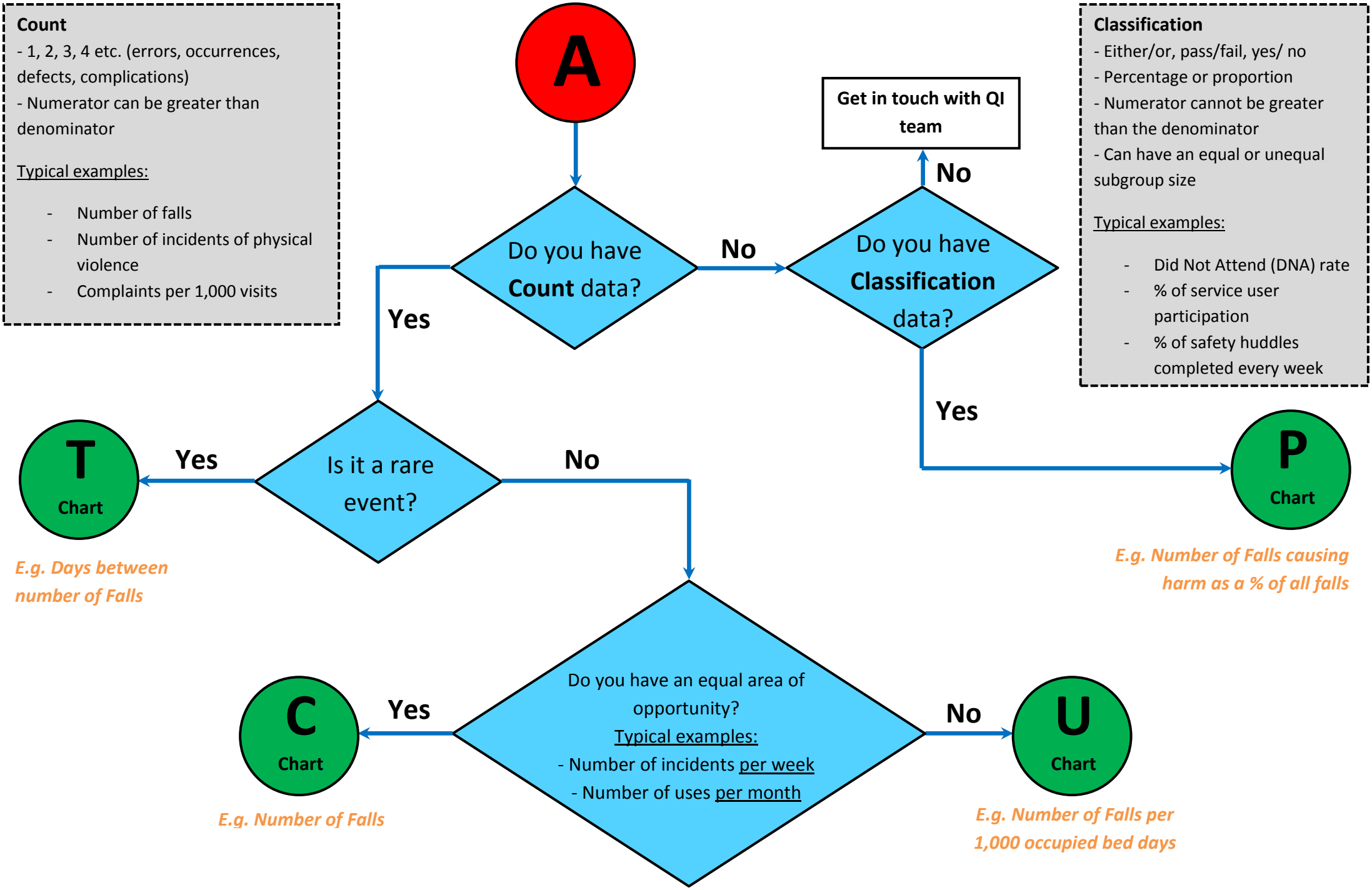
Between any two continuous data values, there may be an infinite number of others – for example *time waited for 1st appointment.*

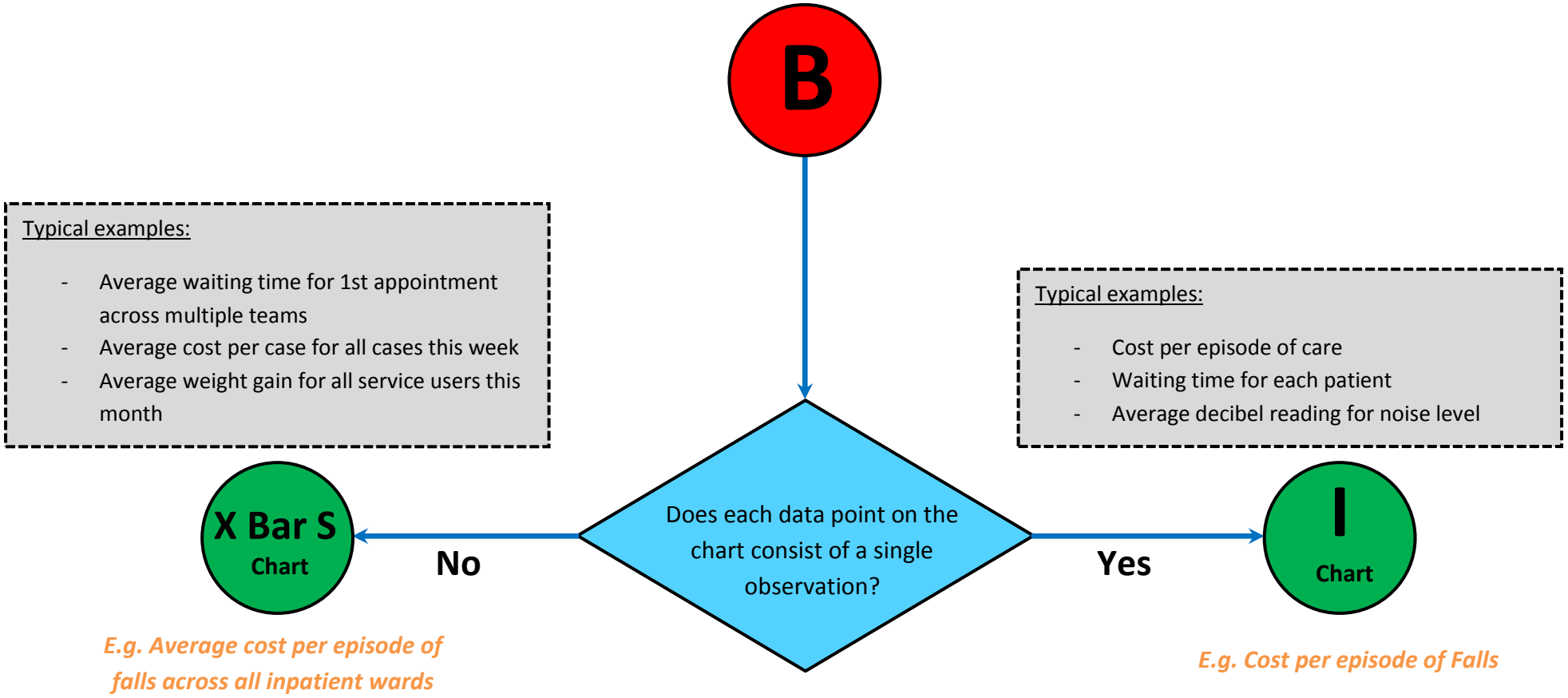
Important points about **continuous** data:

- Data is in the form of a measurement.
  - Time
  - Money
  - Physical measure (length, height, weight, temperature)
  - Throughput (volume of workload, productivity)
- It requires some type of scale

Typical examples

- Waiting times for 1st appointment
- Service user length of stay
- Service user weight


Count
- 1, 2, 3, 4 etc. (errors, occurrences, defects, complications)
- Numerator can be greater than denominator
Typical examples:
- Number of falls
- Number of incidents of physical violence
- Complaints per 1,000 visits
A
Do you have Count data?
Yes
No
Get in touch with QI team
No
Do you have Classification data?
Yes
Classification
- Either/or, pass/fail, yes/ no
- Percentage or proportion
- Numerator cannot be greater than the denominator
- Can have an equal or unequal subgroup size
Typical examples:
- Did Not Attend (DNA) rate
- % of service user participation
- % of safety huddles completed every week
P Chart
E.g. Number of Falls causing harm as a % of all falls
Is it a rare event?
Yes
T Chart
E.g. Days between number of Falls
No
Do you have an equal area of opportunity?
Typical examples:
- Number of incidents per week
- Number of uses per month
Yes
C Chart
E.g. Number of Falls
No
U Chart
E.g. Number of Falls per 1,000 occupied bed days



X Bar S chart characteristics:

- Two charts are created:
  - An average chart known as the X bar chart
    - Upper and lower control limit vary with sample size
    - Y-axis usually the average of a measurement
  - A standard deviation chart known as the S chart
    - Y-axis is the standard deviation of all data points making up each point on the X bar chart