



Validation & Documentation

What do I need to do?

Wayne Goddard

Quality Control West Midlands

What is Validation?

- *Establishing documented evidence that provides a high degree of assurance that a specific process will consistently produce a product meeting its pre-determined specifications and quality attributes“ (FDA 1987)*
- In simple terms it's the accumulation of evidence to prove that a process or piece of equipment works as required
- It can be process, people, equipment or facility related
- Achieved by means of a validation protocol



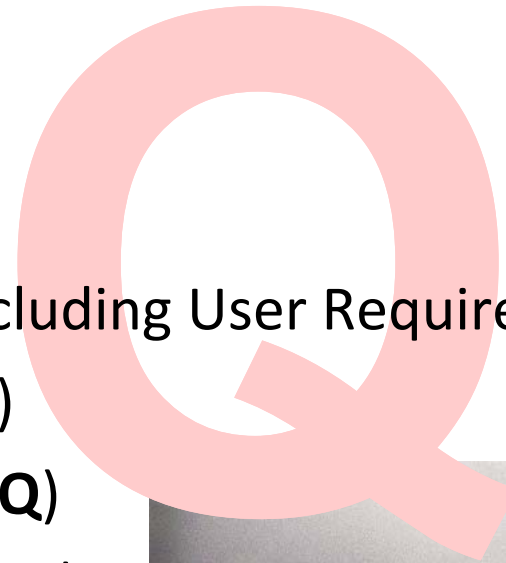
Delivering Quality to the NHS

Definitions

- **Validation** in the pharmaceutical and medical device industry is defined as the documented act of demonstrating that a procedure, process, and activity will consistently lead to the expected results
- Validation as a concept has been around since the mid 1970's (FDA)
- First published by FDA officially in mid 1990's

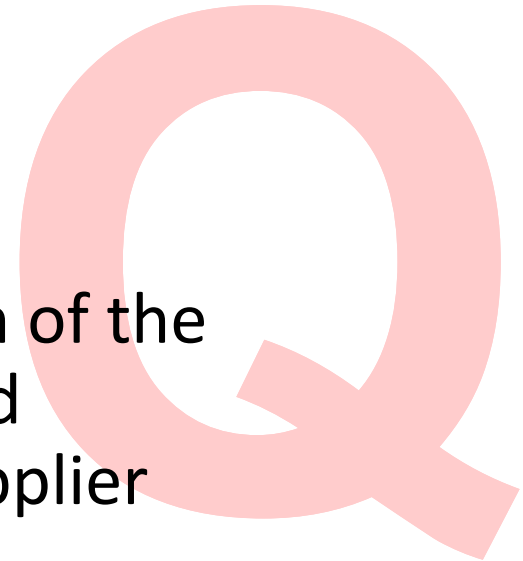
Validation

- Terminology / Definitions
- **All the Q's**
 - Design Qualification (**DQ**) including User Requirement
 - Installation Qualification (**IQ**)
 - Operational Qualification (**OQ**)
 - Performance Qualification (**PQ**)
- Performance Verification (**PV**)



The Q's

- **Design Qualification (DQ)**- Defines the functional and operational specification of the instrument, program, or equipment and details the rationale for choosing the supplier
- **Installation Qualification (IQ)** - Demonstrates that the process or equipment meets all specifications, is installed correctly, and all required components and documentation needed for continued operation are installed and in place

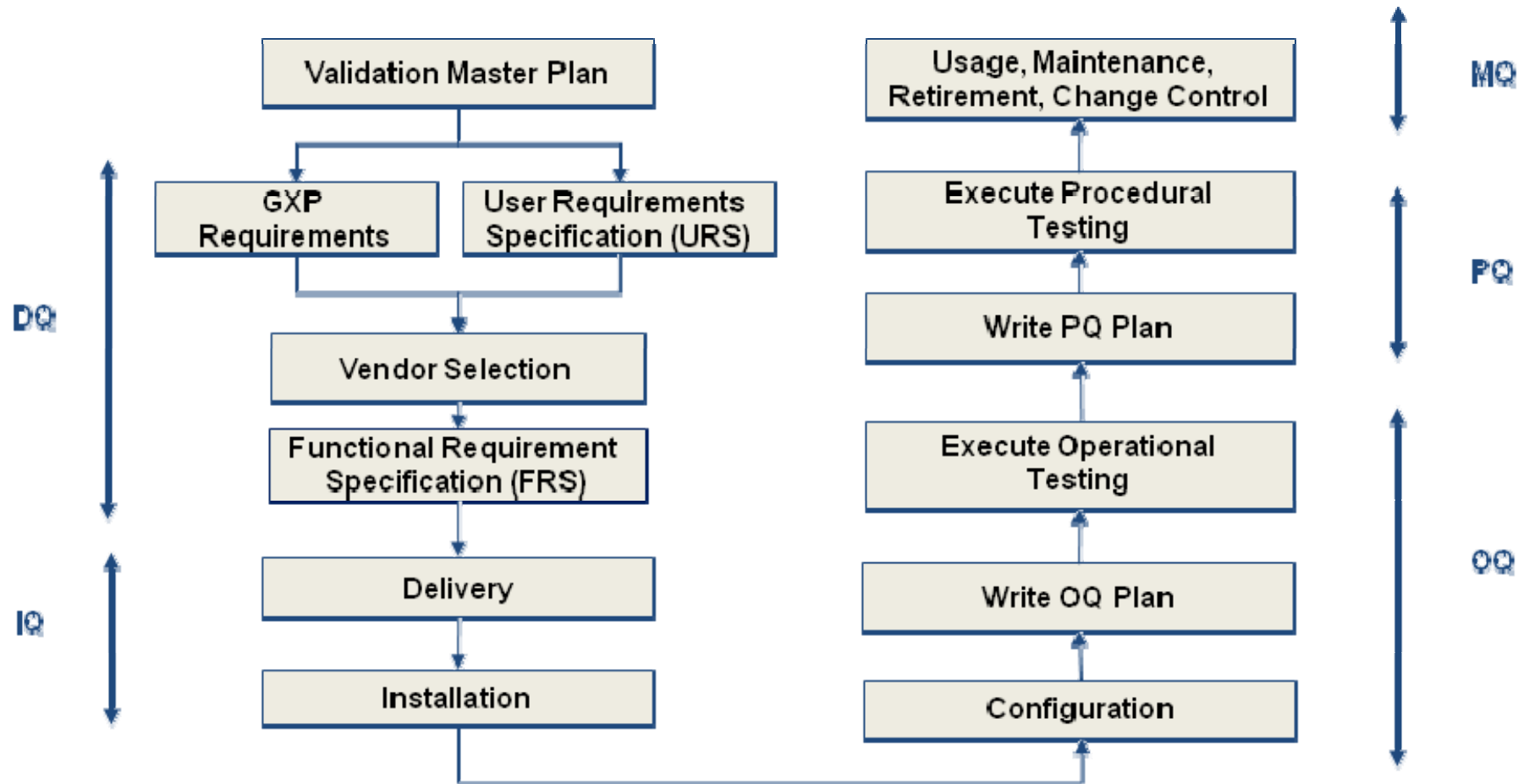


The Q's



- **Operational Qualification (OQ)** - Demonstrates that all facets of the process or equipment are operating correctly
- **Performance Qualification (PQ)** - Demonstrates that the process or equipment performs as intended in a consistent manner over time

Validation Flow



Design Qualification

- Documented verification that the proposed design of equipment/systems is suitable for the intended purpose
- What are you going to store and what specification is required?
 - Pharmaceutical Refrigerator 2 to 8°C
 - Blood Bank Refrigerator 1 to 6°C
 - Chilled Food <8°C



User Requirement Specification

- Decide what you want first – it sounds so easy!!
Don't buy something and then try and make it work
- The DQ should drive the user requirement specification
- Don't assume! Be specific.
- Once written the specification should be given to suppliers
- Suppliers should be scored as to how well their product meets the specification



Selection of a Supplier

- How well does each supplier's product match up to the URS?
- Cost!!!
- If no one product meets all the requirements check whether all the requirements are essential

Installation Qualification (IQ)

- There are two main parts to the IQ
 - Delivery inspection
 - Installation
- In simple terms check it's what you ordered and setting it up
- This can normally be purchased as a service from the vendor – check you know what is covered
- Don't rush in!! Follow the manufacturers instructions for set-up
e.g. some fridges have to be left for several hours for coolant to equilibrate



This seems a lot of work!

- For most equipment the DQ, IQ and OQ can all be done by the manufacturer/vendor
- In a lot of cases this is the best option and some equipment is complex or qualification difficult
- In the first stages of validation most users only produce the URS
- The key stages most users will do are
 - Performance Qualification (PQ) and
 - Operational Qualification (OQ)



Operational Qualification (OQ)

- The OQ is divided into three parts
 - Configuration
 - The OQ plan
 - Operational testing
- In simple terms this is the proof that the instrument has been configured correctly and is performing to it's specification
- This can be purchased as a service from the vendor or third party
(advisable for complex equipment)



Application!

- Two users buy fridges from the same manufacturer with IQ/OQ
- However one wants to store blood and one wants to store small volume pharmaceuticals
- The OQ for each will need to reflect the differences
- Why – because it's about demonstrating it's suitability for it's intended application

Application!

Fridge One – Blood

- Specification 1 to 6°C
- Unit size about 450ml
- Containers bags
- Shelf life days

Fridge 2 – Pharma

- Specification 2 to 8°C
- Unit size 0.5 to 10ml
- Containers
glass/cardboard
- Shelf life months/years

OQ Design

Fridge 1 – Blood

- Set at midpoint 3°C
- Test in unloaded state
- Complies?
- Test in loaded state –
can use a simulator
rather than real product
e.g. 500ml infusion bags
- Complies?

Fridge 2 – Pharma

- Set at midpoint 5°C
- Test in unloaded state
- Complies?
- Test in loaded state –
can use a simulator
rather than real product
e.g. 5ml injections
- Complies?

OQ Protocol

- Must have defined acceptance criteria
- Agree with Quality Assurance
- All methods and equipment must be documented
- Define where measurements are taken i.e. probe locations
- Document any exceptions/deviations including any root cause or follow up

OQ Tips

- Use electronic devices such as data loggers
- Take data over a reasonable period – we normally use a minimum of 48hours continuous data
- Take data at reasonable intervals – we normally use between 5 and 15 minutes
- Lock the unit – people opening doors can ruin data!!

OQ Completion

- Have all tests been completed satisfactorily?
- If further testing is required
 - define this and
 - perform
- On completion of the OQ protocol decide whether the unit is suitable for its intended use
- Get OQ signed off by a QA Representative

Performance Qualification (PQ)

- The purpose of this is prove that a unit continues perform as expected i.e. routine monitoring
- There are two parts
 - ongoing monitoring
e.g. daily
 - re-qualification
e.g. revisiting some or all of the OQ

Ongoing Monitoring

- This is the day to day monitoring of a unit
- Various methods can be used
- Acceptance criteria should reflect that in the OQ
- All exceptions should be investigated



Re-qualification

- How often?
 - Normally annual is expected (see below)
- What is expected?
 - Performance of loaded state OQ tests
- Are there any exceptions?
 - If you have continuous multiple measurements within a unit then it may be possible to argue on a risk basis that re-qualification is unnecessary providing no changes have been made

Change Control

A formal system by which individuals of review and document proposed changes to assure that a validated state is maintained

- Changes must be documented and assessed
- Significant changes may need all or part of the validation to be re-visited

Deviations / Non Conformances

A Deviation / Non-conformance is any unplanned event or failure to meet SOPs and/or failure to meet specified limits, which may affect the validation status of a unit

- All instances should be fully investigated
- Validation status should be assessed as part of investigation
- Investigations should be signed off by Manager/QA

Documentation

- To quote the FDA
“If it’s not written down it’s a rumour”
- All validation must be documented
- What should I document?
 - Who, what, where, when, why and how
- Most importantly when it comes to the crunch can you prove it?
i.e. were you storing stock at the correct temperature

Any questions?



I should warn you... I'm not exactly feeling standards-compliant tonight.