

Usability test of an adapted assistive technology resource to improve the pharmaceutical care of older people with sensory impairment.

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Background:

- As the world population ages, the prevalence of Visual and Hearing Impairments will increase.
- This creates an increased demand for healthcare services to support these patient populations.
- Assistive technology products can be used by older people with sensory impairment to improve medication adherence and safety.
- We must make patient facing healthcare professionals more aware of the available assistive technology products which can be used by older people with sensory impairment to improve the pharmaceutical care of these patients.

Previous research:

Previously a market search was carried out to identify assistive technology products which could be used to help older people with sensory impairment manage their medicines. The results were collated in an Excel spreadsheet.

Objective:

The aim was to make improvements to the way the information in the spreadsheet was presented and organised, to create a more user-friendly resource which can be utilised by patient facing healthcare professionals to recommend assistive technology products to patients with sensory impairments. By improving knowledge in pharmacists, patients will be better supported in their pharmaceutical care journey through the recommendation of these products.

Methods:

PDSA cycles

Initially, a Series of PDSA cycles were carried out to make qualitative improvements to the resource (1).

Usability test

Then, a 2-part usability test was carried out with 9 pharmacists who would be potential end-users of the resource. Data was collected in multiple ways using Zoom:

1. Think aloud method

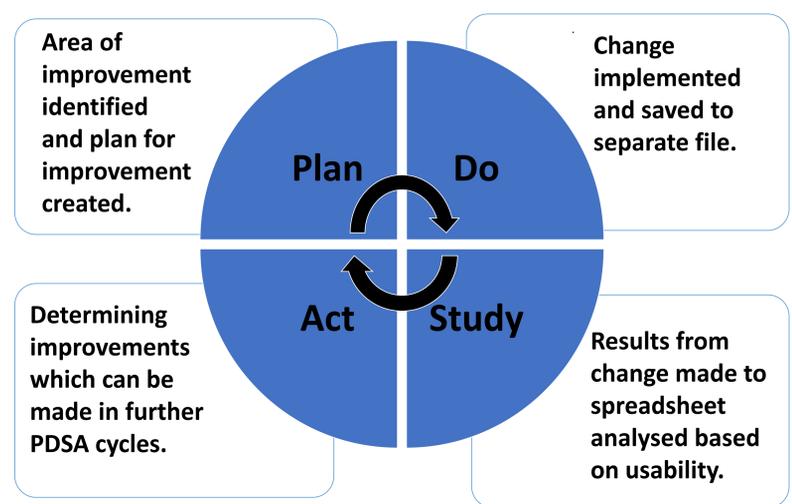
Used to gain pharmacists unfiltered thoughts and opinions on the resource (2).

- Participants were asked to 'think aloud' whilst using resource.
- Participants completed 3 tasks based on patient scenarios.
- Task involved using the resource to find products for the patient presented in the scenario.

2. Technology Acceptance Model (TAM)

Used to gain data on the perceived usefulness and perceived ease of use of the resource (3).

- Participants responded to a questionnaire developed from the TAM model using the poll function of Zoom
- Questionnaire responses based on a 5-point Likert scale ranging from strongly agree to strongly disagree



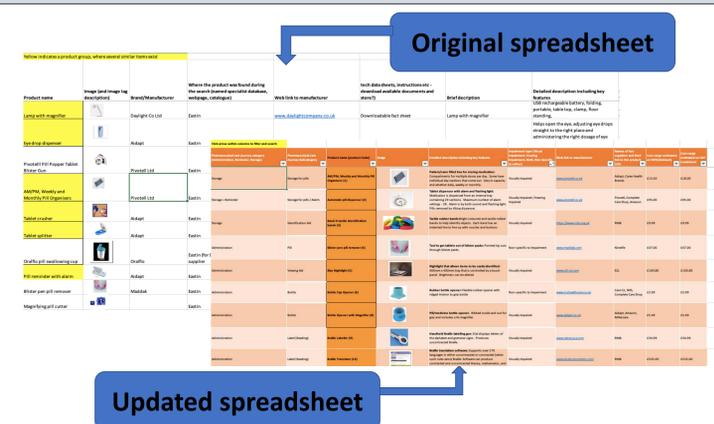
Results and Discussion:

PDSA cycles

A total of 10 PDSA cycles were carried out until the updated spreadsheet resource was deemed suitable for usability testing. The number of columns was reduced from 26 in the original spreadsheet to 9 in the final resource.

Think aloud

- Interview transcripts were coded using an inductive approach.
- 4 Main themes were discovered using a step-by-step thematic analysis method.



Searching and navigation

- Filter function helpful to narrow down products.
- Filter function may remove useful products.
- Pictures helpful however too small.
- Some terminology unclear.
- Difficulty clearing filters.
- Searching easier after familiarisation with resource.

Resource content

- Good range of products.
- Participants had little prior knowledge of products.
- Layout of content made it easier to navigate.
- Addition of a rating and review section.
- No searching of other websites or resources required.

Use in practice

- Resource would be helpful to have in practice.
- Currently no where to locate products
- Training required before use.
- Excel not the best format.
- Differences in technical ability may affect use of resource
- Resource would save participant time in practice.

Recommendation of products

- Professional judgement used to choose products to recommend.
- Participants would want to involve patients in making decisions about products.
- Concerns about suppliers and how easily patients would be able to obtain products.

Technology Acceptance Model (TAM)

- All participants agreed or strongly agreed that they would find this resource useful when recommending products to people with sensory impairments.
- All participants agreed or strongly agreed that using this resource would make it easier to recommend products to patients with sensory impairment.
- All participants agreed or strongly agreed that the resource would be easy to use.
- 7 out of 9 participants agreed or strongly agreed that learning to operate the resource would be easy.

Discussion

- Further PDSA cycles will be required to further improve the usability of the resource. Resource is usable in its current format however resource may be further improved if the information was transferred to a more advanced format(e.g., website or app) then current features of the resource could be optimized.
- Most participants were unaware of the products within the resource, training is needed to improve healthcare professionals' knowledge of sensory impairments to allow patients needs and abilities to be accommodated.

Areas for improvement include:

- Increasing the size of product pictures.
- Addition of a rating and review section for products.
- Review of product suppliers to ensure they are obtainable by patients.
- Training required to familiarize users with terminology.
- Simplifying process for clearing filters.

References:

1. Taylor M, McNicholas C, Nicolay C, Darzi A, Bell D, Reed J. Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ Quality & Safety*. 2013;23(4):290-298.
2. Yen PY, Bakken S, editors. A comparison of usability evaluation methods: Heuristic evaluation versus end-user think.aloud protocol – An example from a web.based communication tool for nurse scheduling. *AMIA Annual Symposium Proceedings*. American Medical Informatics Association. 2009
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