• Welcome to the MUS Webinar on An Update on the influences on Medicines Adherence and recent developments to support patients with Dr Claire Easthall from University of Leeds
• The webinar itself will start at 1pm – shortly before 1pm Jane Hough will be doing sound checks – bear with her if you hear this more than once!
• To join the audio call 0203 478 5289 access code 147 401 443
• The webinar will be recorded and both recording and slide set will be available on the SPS website – under Networks (you need to be logged onto the SPS site to access it)
• If you want to make a comment or ask a question of the presenters – please use the “chat” function (you need to choose to direct your question to “All Participants” from the drop down box)
• Claire will answer questions at the end of all the presentations
Upcoming MUS Events

8th November - MUS Webinar at 1pm on Managing Common Mental Health Conditions in Pregnancy
No webinar in December, 10th January 2018 – Carter Two Update

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Medicines Use and Safety Update September 2017 - link

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An update on the influences on medication adherence & recent developments to support patients: exploring the value of psychological theory

Dr Claire Easthall
Lecturer in Pharmacy Practice, University of Leeds
c.easthall@leeds.ac.uk
Medication adherence: What’s the issue?

• World Health Organisation (WHO, 2003)
  ❖ 30-50% of patients taking medicines for chronic conditions are non adherent
  ❖ Worldwide problem of striking magnitude

• Clinical and economic consequences
  ❖ Additional investigations/treatments if undetected
  ❖ Increased morbidity and mortality
  ❖ Wasted resources
Medication adherence: What do we know?

• Complex behaviour with a plethora of influencing factors
  ❖ Cognitive and physical impairments = practical barriers
  ❖ Illness perceptions and health beliefs = perceptual barriers

• Treatment related factors e.g. regimen complexity
• Prescriber & healthcare related factors e.g. trust
• Patient related factors e.g. social support
• Condition specific related factors

• More complicated than just not taking medicines!
Interventions to improve medication adherence: Are we getting it right?

- Cochrane review (Nieuwlaat et al. 2014)
  - 182 RCTs: Only 5 improved both medication adherence & clinical outcomes
  - No single characteristic common to effective interventions
  - Modest improvements achieved at best
  - Lack of tailoring to meet individual need
  - Lack of grounding in psychological theory
Interventions to improve medication adherence: Common practice

• Routine care predominated by educational and behavioural interventions
  - Effect size (Cohen’s d (95%CI)) for educational & behavioural interventions = 0.16 (0.08, 0.24) (Peterson *et al.* 2003)
  - Effectiveness dependent on suitability and careful implementation
  - Provision of multi-compartment adherence aids can lead to dangerous overdoses (Bhattacharya *et al.* 2016)
Interventions to improve medication adherence: Could we do better?

• Interest in using cognitive-based strategies

• Wide range of behaviour change techniques grounded in psychological theory:
  ❖ Motivational interviewing & behaviour change counselling
  ❖ Health coaching & cognitive behavioural therapy
  ❖ Implementation Intention Interventions (if-then planning)

• Promising evidence for effectiveness
  ❖ Effect size (95% CI) = 0.21 (0.08 to 0.33) (Easthall et al. 2013a)
Interventions to improve medication adherence: Understanding it from the patients perspective

• Paternalistic traditions of the healthcare system are still evident in practice
  ❖ Over-reliance on educational-based interventions
  ❖ Provision of persuasive advice evokes further resistance to change (Miller and Rollnick 1991)
  ❖ Health beliefs and illness perceptions often overlooked
Moving forwards...

• To make progress with adherence research and interventions we need to:
  • Revisit psychology to better ground interventions in theory
  • Develop a robust strategy for tailoring interventions to meet individual needs
  • ...and STOP with the one-size fits all approach

- Composite of health psychology theory
- Key determinants of behaviour grouped into 12 theoretical domains
- Applied to different health related behaviours e.g. Smoking cessation, diet, physical activity (Francis et al. 2012)
**Capability, Opportunity and Motivation to adhere: The COM-B model** (Michie et al. 2012)

- For an individual to undertake a **Behaviour** they must:
  - Be **Capable** of doing it
  - Have **Opportunity** to do it
  - Be **Motivated** to do it

- **Capability and opportunity to adhere:**
  - Practical impediments to adherence

- **Motivation to adhere:**
  - Influenced by perceptual barriers to adherence
  - Illness perceptions, health beliefs & emotions
### TDF domains and COM-B components map on to each other:

<table>
<thead>
<tr>
<th>COM-B component</th>
<th>TDF Domain</th>
<th>E.g. adherence barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPABILITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical capability</td>
<td>Skills (physical)</td>
<td>Swallowing difficulties</td>
</tr>
<tr>
<td>Psychological capability</td>
<td>Knowledge</td>
<td>Lack of knowledge</td>
</tr>
<tr>
<td></td>
<td>Skills (cognitive &amp; interpersonal)</td>
<td>Lack of understanding</td>
</tr>
<tr>
<td></td>
<td>Memory, attention &amp; decisions</td>
<td>Forgetfulness</td>
</tr>
<tr>
<td>COM-B component</td>
<td>TDF Domain</td>
<td>E.g. adherence barrier</td>
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<tr>
<td>-----------------</td>
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<td>------------------------</td>
</tr>
<tr>
<td><strong>OPPORTUNITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>Environmental context &amp; resources</td>
<td>Difficulties getting to pharmacy</td>
</tr>
<tr>
<td>opportunity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>Social Influences</td>
<td>Lack of trust in GP</td>
</tr>
<tr>
<td>opportunity</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MOTIVATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflective</td>
<td>Beliefs about capabilities</td>
<td>Lack of self-efficacy</td>
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<tr>
<td>motivation</td>
<td></td>
<td></td>
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<tr>
<td>Beliefs about</td>
<td></td>
<td>Doubting necessity of medicines</td>
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<tr>
<td>consequences</td>
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<tr>
<td>Intentions &amp;</td>
<td></td>
<td>Lack of motivation</td>
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<tr>
<td>goals</td>
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<tr>
<td>Automatic</td>
<td>Emotion</td>
<td>Negative emotions</td>
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<tr>
<td>motivation</td>
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</tbody>
</table>
The Behaviour Change Technique (BCT) Taxonomy (Michie et al. 2013)

- BCTs = ‘active ingredients’ of an intervention
- Taxonomy provides international consensus and a ‘common language’ to support intervention development
- 93 BCTs clustered into 16 groups

The Behaviour Change Wheel (BCW) (Michie et al. 2012, 2014)

- Integrates TDF and Taxonomy of Behaviour Change Techniques (BCTs) to enable tailoring of interventions to target behaviour
## Pulling it all together…

<table>
<thead>
<tr>
<th>Problem behaviour</th>
<th>TDF domain</th>
<th>COM-B component</th>
<th>Appropriate intervention (BCT)</th>
</tr>
</thead>
</table>
| Patient is non-adherent as they do not know how to use their inhaler correctly   | Knowledge/skills            | Psychological capability  | 6.1   Demonstration of the behaviour  
|                                                                                 |                             |                          | 8.1   Behavioural practice/rehearsal                                                              |
| Patient is non-adherent as they don’t believe their inhaler will work            | Beliefs about consequences  | Reflective motivation    | 2.5   Monitoring of outcomes of behaviour  
|                                                                                 |                             |                          | 5.1   Information about health consequences                                                       |

**But how do we identify the problem behaviours?...**
Applying the TDF to medication adherence

• Novel adherence intervention
  - Grounded in theory and targeted to address questionnaire identified barriers to adherence using TDF and BCW
  - Delivered by routine healthcare providers including pharmacists?

- Questionnaire development
- Questionnaire validation
- Intervention development
- Feasibility study
- Definitive trial

- Implementation research
  - Barriers to behaviour change at the practitioner level
Questionnaire development & barrier mapping

• Publications currently in press
• Posters from conference proceeding available on research gate:

  - [https://www.researchgate.net/publication/259285856_The_role_of_emotions_as_aBarrier_to_medication_adherence](https://www.researchgate.net/publication/259285856_The_role_of_emotions_as_aBarrier_to_medication_adherence)
  - [https://www.researchgate.net/publication/265596641_Patient_perspectives_on_literature-identified_barriers_to_medication_adherence_Background](https://www.researchgate.net/publication/265596641_Patient_perspectives_on_literature-identified_barriers_to_medication_adherence_Background)
Identification of Medication Adherence Barriers Questionnaire (IMAB-Q)

- 30 item questionnaire
  - 3 statements per behavioural domain
- Grounded in psychological theory
- Established face validity
- Pharmacy Research UK Grant
  - Test feasibility of use
  - Gather data for psychometrics
  - Explore barriers to implementation

Questionnaire can be accessed via UEA website: [https://www.uea.ac.uk/pharmacy/research/imab-q/quest](https://www.uea.ac.uk/pharmacy/research/imab-q/quest)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I know how to take my medicines as prescribed</td>
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<td></td>
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<tr>
<td>2 I am physically able to take my medicines as prescribed</td>
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<tr>
<td>3 I remember to take my medicines as prescribed</td>
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<td></td>
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<tr>
<td>4 I trust my doctor(s) with decisions about my healthcare</td>
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<tr>
<td>5 I can easily get hold of my prescribed medicines from the pharmacy or surgery</td>
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<tr>
<td>6 I have negative emotions (e.g. frustration, embarrassment, anger) about taking my medicines as prescribed</td>
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<tr>
<td>7 I am motivated to take my medicines as prescribed</td>
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<tr>
<td>8 I do not have to choose between paying for my prescriptions and paying for other things that are important to me</td>
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<tr>
<td>9 I feel confident about all aspects of managing (ordering, collecting and taking) my medicines</td>
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<tr>
<td>10 I worry about the unwanted effects (e.g. harmful effects or side effects) of taking my medicines</td>
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</tr>
</tbody>
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IMAB-Q: Preliminary findings (Brown et al. 2017)

- 1407 questionnaires distributed across 9 community pharmacies:
  - 608 (43.2%) returned with a valid consent form AND completed responses to all 30 IMAB-Q items

- Adherence assessed via Visual Analogue Scale (VAS):
  - Participants reporting poor adherence, reported greater barriers to adherence compared to participants reporting good adherence
  - Statistically significant difference ($p = 0.016$, Independent Samples t-test)

- Mean score calculated for each behavioural domain of TDF:
  - ‘Emotions’ and ‘beliefs about consequences’ were the greatest barriers
  - Both in ‘motivation’ domain of COM-B model
Continuation of the TDF and IMAB-Q work

Data analysis complete, PRUK report submitted, papers in preparation

- Which BCTs are effective in practice?
- Update systematic review and meta-analysis and use BCT taxonomy to code interventions

Questionnaire validation

Intervention development

Feasibility study

Definitive trial

Disease specific adaptations

Validation in different populations e.g. Australia

- Implementation research
- Barriers to behaviour change at the practitioner level

Educational project: Are we providing our undergraduates with sufficient training to confidently utilise behaviour change techniques in practice?

What about post-graduate CPD?
Conclusions

• Medicines taking is a complex health behaviour
  ❖ Wide range of influences and determinants
• Adherence interventions need to be targeted to address individual factors which influence non-adherence
  ❖ One size fits all approach won’t work
  ❖ Wrong intervention can do more harm than good!
  ❖ TDF and COM-B model bring theory and intervention targeting together
• Patient-centred approaches recognise patient perspective
A new publication summarising the key points:


  Available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5622362/
Acknowledgements

• Dr Debi Bhattacharya, Professor David Wright, Professor Fujian Song and Mr John Wood: PhD Supervisors at UEA
• IMAB-Q project group (UEA)
• University of East Anglia: Dean of Science PhD Studentship
• Harold and Marjorie Moss Charitable Trust Funding
• Pharmacy Research UK
• School of Healthcare & School of Psychology, University of Leeds
References

• Bhattacharya D, Aldus CF, Barton G et al. 2016. The feasibility of determining the effectiveness and cost-effectiveness of medication organisation devices compared with usual care for older people in a community setting: systematic review, stakeholder focus groups and feasibility randomised controlled trial. Health Technology Assessment. 20: 50


References

References


References

Poll Question Number 1

Overall I found the webinar content useful to me:

- Agree strongly
- Agree
- Disagree
- Disagree strongly
Poll Question Number 2

I would recommend this learning event to others:

- Agree strongly
- Agree
- Disagree
- Disagree strongly
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