Economic evaluation of mental health interventions offered by the national health service (NHS) in England: the NICE guidelines programme

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Overview

- NICE overview: role and programmes, external collaborators, legal status of guidance
- Brief overview of the NICE mental health guidelines programme
- NICE guideline development process
- NICE approach to health economics
- Consideration of health economics in guideline development
- Case study: Health Economics in the NICE guideline on Psychosis & Schizophrenia in adults
- Challenges when evaluating the cost-effectiveness of mental health interventions

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NICE: overview of its role and programmes, external collaborators, legal status of guidance

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National Institute for Health and Care Excellence (NICE) [1]

- Provides national guidance and advice to improve outcomes of people using the NHS (National Health Service) and other public health and social care services in England

  (+ agreements to provide certain NICE products and services to Wales, Scotland and Northern Ireland).
- Develops quality standards and performance metrics for providers and commissioners of health, public health and social care services.
- Provides a range of information services for commissioners, practitioners and managers across the spectrum of health and social care.

  https://www.nice.org.uk/

National Institute for Health and Care Excellence (NICE) [2]

- Originally set up in 1999 as a special health authority to reduce variation in the availability and quality of NHS treatments and care.
- Since 2013 responsibility for providing guidance and quality standards in social care.
- Accountable to the Department of Health and Social Care, but operationally independent of government.

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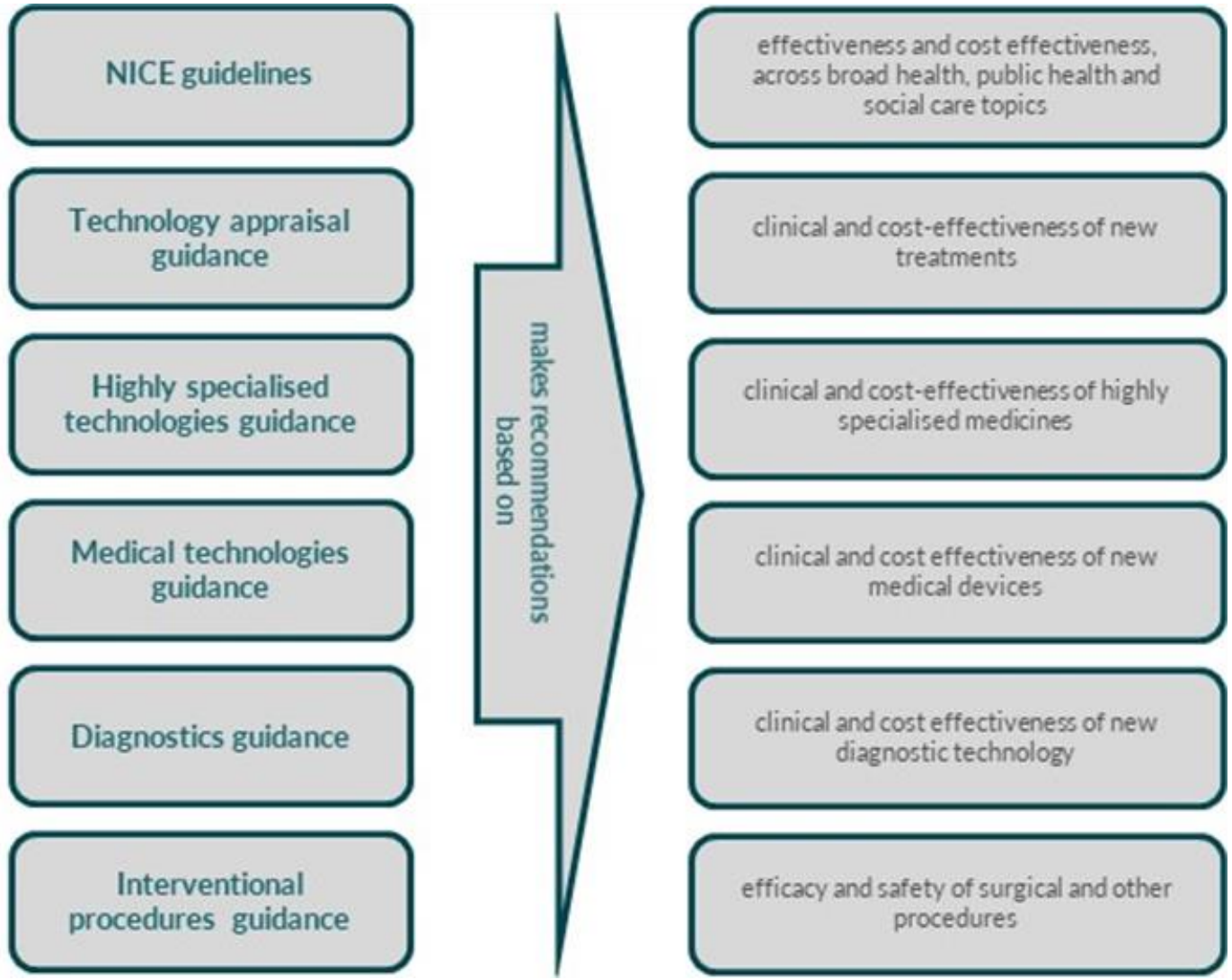
NICE guidance

Evidence-based recommendations developed by independent committees, including professionals and lay members, and consulted on by stakeholders

NICE guidance aims to give everyone access to high-quality care and provide best value for the NHS and social care

It helps new treatments and technologies to be made available in the NHS and care sector

It helps professionals and people using services make informed decisions about care



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The role of academia & external contractors: [1] The Technology Appraisals programme

- NICE currently commissions 9 independent academic centres to review the published evidence when developing technology appraisals guidance.
- The Decision Support Unit (DSU), based at the University of Sheffield, is commissioned by NICE to provide a **research and training resource** to support the Institute's Technology Appraisals programme. DSU has a network of members at the University of York, University of Leicester, University of Bristol, London School of Hygiene and Tropical Medicine, and University of Exeter. http://nicedsu.org.uk/

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The role of academia & external contractors: [2] The Guidelines programme

- NICE commissions 2 independent centres (in addition to its internal guidelines team) to develop clinical and social care guidelines:
  - ✓ National Guideline Alliance, based at the Royal College of Obstetricians and Gynaecologists (RCOG)
  - ✓ National Guidelines Centre, based at the Royal College of Physicians.
- The Guidelines Technical Support Unit (TSU), based at the University of Bristol, is commissioned by NICE to provide **technical advice, training and research services** to support the Institute's Guidelines programme. TSU has also members at the University of York, University of Sheffield and University of Leicester. https://www.bristol.ac.uk/population-health-sciences/centres/cresyda/mpes/nice/

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Legal status of NICE guidance [1]

- The ***NHS*** is ***legally obliged*** to fund and resource medicines and treatments recommended by NICE's technology appraisals.
- Patients have the right to drugs and treatments that have been recommended by NICE for use in the NHS, ***if their doctor believes they are clinically appropriate*** (NHS Constitution).
- NICE's guidance is ***not clinically mandatory***.
- When exercising their judgement, ***health professionals are expected to take NICE guidance fully into account***, alongside the individual needs, preferences and values of their patients.
- The application of the recommendations is ***at the discretion*** of health professionals and their individual patients and ***do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian***.

Legal status of NICE guidance [2]

- ***Local commissioners and providers of healthcare have a responsibility to enable a guideline to be applied*** when individual professionals and people using services wish to use it. They should do so ***in the context of local and national priorities for funding and developing services***, and ***in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities***. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.
- When exercising their judgement, ***professionals and practitioners are expected to take guidelines fully into account***, alongside the individual needs, preferences and values of their patients or the people using their service. ***It is not mandatory to apply the recommendations***, and ***the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual***, in consultation with them and their families and carers or guardian.

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NICE mental health guidelines

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NICE Mental Health Guideline Development

- From 2001 to 2016 all mental health guidelines were developed by the National Collaborating Centre for Mental Health (NCCMH), a joint project of the Royal College of Psychiatrists and the British Psychological Society.
- In 2016 NCCMH (guidelines team) merged with the NCC for Women's and Children's Health and the NCC for Cancer to form the National Guideline Alliance (NGA) => expertise on mental health topics retained within the NGA.
- Some mental health guidelines are being updated by the National Guideline Centre and the NICE Internal Guidelines Team.

Published NICE mental health guidelines (latest date of publication)

Self-harm: short term management and prevention of recurrence *	July 2004	Antisocial behaviour and conduct disorders in children and young people	March 2013
Obsessive-compulsive disorder	Nov 2005	Social anxiety disorder	May 2013
Drug misuse – psychosocial interventions	July 2007	Autism in children: management	Aug 2013
Drug misuse – opioid detoxification	July 2007	Psychosis & schizophrenia in adults**	Feb 2014
Antisocial personality disorder	Jan 2009	Bipolar Disorder	Sep 2014
Borderline personality disorder	Jan 2009	Antenatal and Postnatal Mental Health	Dec 2014
Depression with chronic physical health problems	Oct 2009	Violence and aggression: short-term management in mental health, health and community settings	May 2015
Depression in adults *	Oct 2009	Challenging behaviour and learning disabilities	May 2015
Generalised anxiety & panic disorder	Jan 2011	Attachment in children adopted from care, in care or at high risk of going into care	Nov 2015
Alcohol-use disorders	Feb 2011	Mental health problems in people with learning disabilities	Sep 2016
Psychosis with substance misuse	March 2011	Mental health of adults in contact with the criminal justice system	March 2017
Common mental health disorders	May 2011	Eating disorders	May 2017
Autism in children: recognition, referral and diagnosis	Sep 2011	Attention deficit hyperactivity disorder	March 2018
Self-harm: longer-term management *	Nov 2011	Dementia	June 2018
Service user experience in adult mental health	Dec 2011	Post-traumatic stress disorder	Dec 2018
Autism in adults	June 2012	Depression in children and young people	June 2019
Psychosis & schizophrenia in children & young people	Jan 2013		

* Updated guidance currently in development

** schizophrenia was the first ever clinical guideline published by NICE (Dec 2002)

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NICE Guideline Development Process

Stages of NICE Guideline Development Process

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Topic referred to NICE (<= NHS England, Department of Health & Social Care, Department of Education

Commissioning to Developer

Scoping

- Developer drafts scope (key issues & review questions)
- Consultation with **stakeholders**
- Final scope is published, after addressing stakeholders' comments
- Independent committee is recruited (health & social care professionals, commissioners, managers, patients & carers)

Development

- Review questions finalised [protocols + economic plan developed]
- Literature search [& call for evidence from **stakeholders**]
- Evidence reviews and economic analyses conducted
- **Committee discusses findings & develops draft recommendations**

Consultation and revision

- **Stakeholders** comment on draft guideline
- All comments are addressed; responses are later published online
- **Committee revises guidance in response to stakeholders' comments**

Validation & sign off

- Quality assurance by NICE & sign off by the Guidance Executive

Publication of guideline (+resources to support implementation)

Developer's technical team:
Guideline leads, information scientists, systematic reviewers, health economists, project team, clinical advisors

- NICE oversees the process
- Process & methods follow the NICE Guidelines Manual: http://www.nice.org.uk/guidelinesmanual
- TSU support

- NICE undertakes regular checks to determine if an update is needed
- Part or all guideline may be updated

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NICE approach to health economics

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Economic evaluation of an intervention, service or programme… "can help decision-makers ensure that maximum gain is achieved from limited resources." *(Developing NICE guidelines: the manual)*

- Resources are **limited**
- If a health system spends more on one thing, it has to spend less on something else
- We need to make **choices** on where/how to use available resources => **maximise health benefit from available resources**
- The **opportunity cost** needs to be considered, i.e. benefits forgone

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- **Economic evaluation** is the comparative analysis of alternative interventions, programmes or strategies in terms of both **costs** and **consequences**.

- **NICE perspective on costs (clinical guidelines):** usually health + personal social service costs
  - However, if other types of costs beyond this perspective are highly relevant, these can be considered in a separate analysis (e.g. criminal justice system, educational, social benefits, etc)

- **NICE preferred measure of outcome:** Quality Adjusted Life Year (**QALY**)

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Quality Adjusted Life Years (QALYs)

- QALYs combine *quantity* and health-related *quality* of life (QoL) into a single measure of health benefit

QALYs = life expectancy (life years) x QoL score (utility)

- QoL scores reflect peoples' **preferences** for health status
- QoL is usually scored with 'perfect health'=1 & death=0

❑2 years in full quality of life = 2 x 1.0 = 2 QALYs
❑2 years at 50% quality of life = 2 x 0.5 = 1 QALY

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Why use QALYs?

- Can summarise net effect of treatment for patients
  - *Length* (survival) & *quality* of life
  - *Long-term QoL* for chronic & recurrent conditions
  - *Benefits* & *harms*

- Allow comparisons across different disease areas & populations

⇒ The QALY is the preferred outcome measure by NICE for use in economic evaluation across NICE programmes

- EQ-5D is the preferred measure of health-related quality of life in adults [which is used for the estimation of QALYs]
  - EQ-5D captures 5 dimensions: mobility, self-care, usual activities, pain/discomfort, depression/anxiety

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Incremental cost-effectiveness ratio [ICER]

Interventions	Costs	Outcomes
Intervention A	£20,000	30 QALYs
Intervention B	£10,000	20 QALYs

$$\text{ICER} = \frac{Difference\ in\ total\ costs\ between\ 2\ interventions\ [£]}{Difference\ in\ effects\ between\ 2\ interventions\ [QALYs]}$$

$$\text{ICER} = \frac{£10{,}000}{10\ QALYs} = £1{,}000/\text{QALY}$$

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NICE criteria for determining cost-effectiveness – cost-effectiveness threshold

- In general NICE considers interventions to be cost-effective when they have an ICER of less than **£20,000-£30,000/QALY**
- When the ICER is between £20,000-£30,000/QALY (and, on some occasions, even beyond £30,000/QALY), advisory groups need to consider:
  - (un)certainty around the estimated ICER
  - any strong indications that Quality of Life gains have been inadequately captured
  - innovative nature of the technology
- The NICE cost-effectiveness threshold increases beyond £30,000/QALY for 'end of life' interventions, i.e. for interventions that can extend life in people with a diagnosis of a terminal illness

[If an intervention (programme, strategy) is both more effective and less costly than its comparator => cost-effective ('*dominant*')]

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Consideration of health economics in NICE guideline development

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Considering economic evidence in NICE guidelines… [1]

- Review of **existing economic evidence** in <u>all areas covered by the guideline scope</u>

  [process similar to searching and assessing clinical evidence]

- **Primary economic modelling** prioritised for:
  - **areas with anticipated major benefit and resource implications**,
  - where existing economic evidence is insufficient or inconclusive,
  - where variation in practice is large,
  - and where available clinical data allow useful economic modelling that can reduce uncertainty over cost effectiveness

=> Economic plan [all areas covered by the scope are assessed one by one against the criteria set above]

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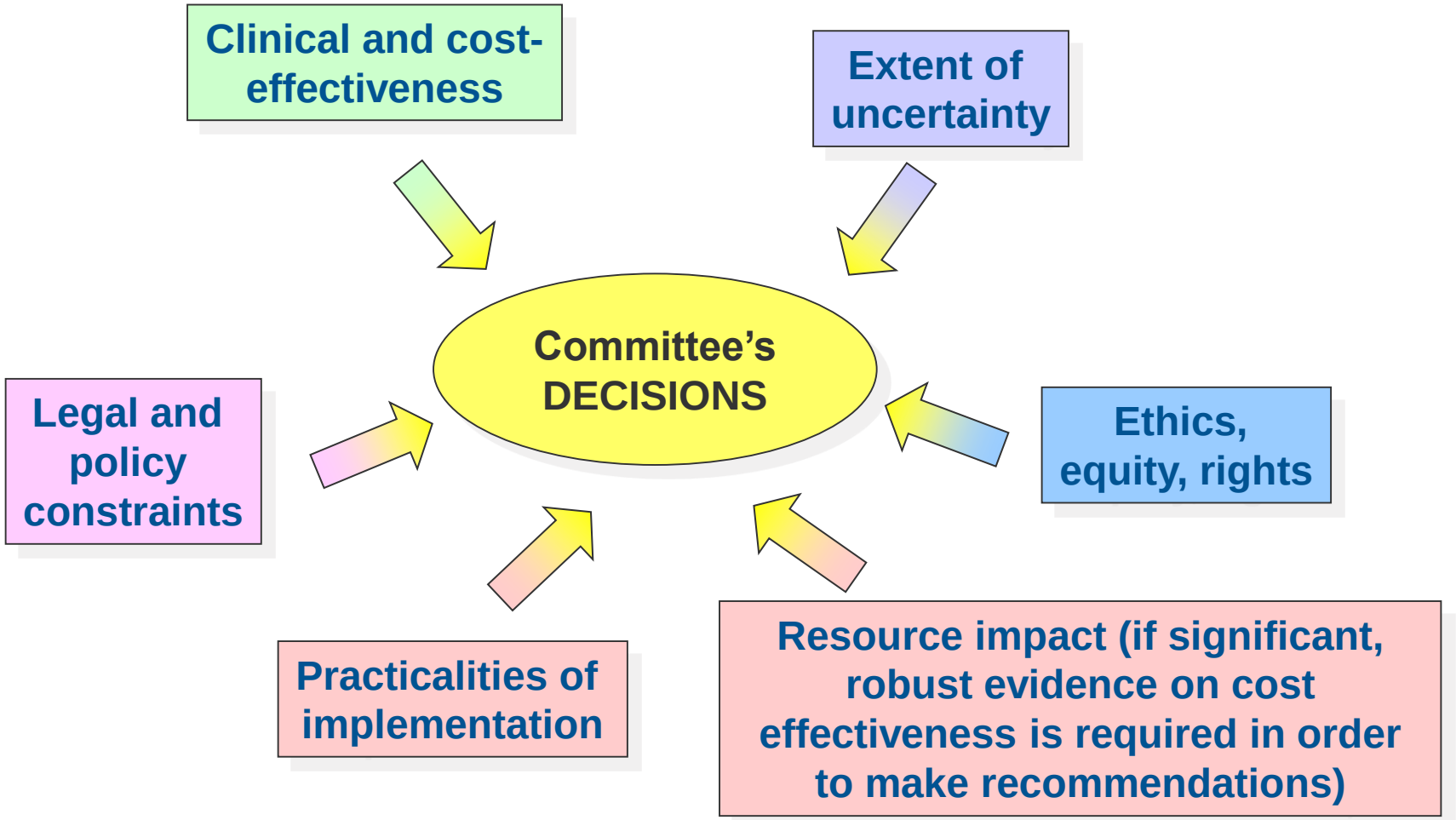
Considering economic evidence in NICE guidelines… [2]

- When a question is not prioritised for economic modelling and no economic evidence exists: cost-effectiveness is still considered when making recommendations (simple consideration of resources required and/or costs, qualitative considerations)

“The Committee should discuss cost effectiveness in parallel with general effectiveness when formulating recommendations.”

(Developing NICE guidelines: the manual)

Factors to consider when making recommendations



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Health Economics in the NICE guideline on Psychosis & schizophrenia in adults

Psychosis and Schizophrenia in adults guideline – the role of economic evidence

- First NICE guideline, published in 2002 – recommendations on *interventions* and *services* for adults with schizophrenia [CG1]
  - Existing economic evidence reviewed
  - No primary economic modelling undertaken
- 2009: updated recommendations on *interventions* [CG82]
  - Existing economic evidence reviewed across all areas
  - Prioritisation of topics for primary economic modelling:
    - ✓ **Maintenance treatment with antipsychotic medication** (relapse prevention)
    - ✓ **Psychological interventions** (Cognitive Behavioural Therapy [CBT] & Family Intervention [FI])
- 2014: updated recommendations on *services* [CG178]
  - Existing economic evidence reviewed across all areas
  - Prioritisation of topic for primary economic modelling:
    - ✓ **Vocational rehabilitation**

Maintenance treatment with antipsychotic medication: primary economic analysis in the 2009 update [1]

Rationale for prioritisation

- ❑ Total number of people with schizophrenia affected is high
- ❑ Significant long-term implications on outcomes and costs
- ❑ Existing economic evidence limited [+limited UK evidence]
- ❑ Good quality data on efficacy of antipsychotic medication => robust modelling was enabled

Maintenance treatment with antipsychotic medication: primary economic analysis in the 2009 update [2]

Model specification and data sources

⇒ 7 oral antipsychotics available in the UK examined

⇒ Economic model considered events such as remission and relapse (and associated hospitalisations & management by crisis teams), treatment discontinuation due to side effects or other reasons, switching to other antipsychotics including depot preparations, development of side effects (extrapyramidal symptoms, weight gain, metabolic syndrome) and further complications from diabetes

⇒ Time horizon: over people's lifetime

⇒ QALYs & costs modelled for each of the 7 oral antipsychotics

- Efficacy data obtained from the guideline systematic review
- Other clinical data obtained from published literature
- Cost data obtained from national sources, published literature and expert opinion (committee)

Maintenance treatment with antipsychotic medication: primary economic analysis in the 2009 update [3]

Conclusions of economic analysis

⇒ There is **no substantial difference in the relative cost-effectiveness of antipsychotic drugs** considered in the economic model in the prevention of relapses in people with schizophrenia in remission

⇒ **Drug acquisition cost does NOT appear to affect cost-effectiveness**

Maintenance treatment with antipsychotic medication: primary economic analysis in the 2009 update [4]

Guideline recommendation

"**The choice of antipsychotic drug** [in prevention of relapses in people with schizophrenia that is in remission] **should be made** by the service user and healthcare professional together, **considering the relative potential of individual antipsychotic drugs to cause extrapyramidal side effects** (including akathisia), **metabolic side effects** (including weight gain) **and other side effects** (including unpleasant subjective experiences)"

Psychological interventions (CBT and FI): primary economic analysis in the 2009 update [1]

Rationale for prioritisation

- ❑ Total number of people with schizophrenia affected is high
- ❑ Significant intervention costs
- ❑ Clinical benefits with the potential to reduce (costly) hospitalisations, as suggested by clinical evidence
- ❑ Economic evidence very limited or non-existent

Psychological interventions (CBT and FI): primary economic analysis in the 2009 update [2]

Model specification and data sources

⇒ Comparison: CBT or FI added to standard care vs standard care alone

⇒ Economic model considered the reduction in hospitalisation rates following provision of CBT or FI

⇒ Time horizon: 18 months / 2 years

⇒ Only intervention and hospitalisation costs modelled

- Effect of interventions on hospitalisation rates obtained from the guideline systematic review
- Cost data obtained from national sources, published literature and expert opinion (committee)

Psychological interventions (CBT and FI): primary economic analysis in the 2009 update [3]

Conclusions of the economic analysis

⇒ **CBT and FI are likely to be overall cost-saving** interventions for people with schizophrenia **because the intervention costs are offset by savings resulting from a reduction in the number of future hospitalisations** associated with these therapies.

Psychological interventions (CBT and FI): primary economic analysis in the 2009 update [4]

Recommendations

- "**Offer CBT** to assist in promoting recovery in people with persisting positive and negative symptoms and for people in remission."
- "**Offer family intervention** to families of people with schizophrenia who live with or are in close contact with the service user."

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Challenges when evaluating the cost-effectiveness of mental health interventions

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- **Estimating resource use and costs**: variation in resource use across settings (e.g. intensity of treatment, type/seniority of health professional providing treatment), lack of national unit costs especially for psychological therapies
- Sometimes **difficult to model the treatment/care pathway** (variation in practice across settings)
- **Paucity of efficacy data** in some areas, in particular long-term, follow-up data (that are required for modelling)
- **Interaction with social/educational services** (e.g. autism) => knock on effects but: lack of reliable cost and outcome data in these areas
- **Measurement of QALYs:** skepticism on whether EQ-5D can capture all aspects of health-related quality of life in people with mental health problems, in particular people with psychosis

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Thank you!

Questions?...
...Comments?