

# Ethics and bioethics - an interdisciplinary approach to critical thinking

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# DEFINITIONS

- "Critical thinking is the identification and evaluation of evidence to guide decision making. A critical thinker uses broad in-depth analysis of evidence to make decisions and communicate his/her beliefs clearly and accurately."

The Critical Thinking Company

# DEFINITIONS

- Thinking about thinking  
Raiskums, 2008
- Critical thinking clarifies goals, examines assumptions, discerns hidden values, evaluates evidence, accomplishes actions, and assesses conclusions.

Wikipedia

# APPLICATIONS IN SCIENCE

- What is relevant?
- Background information - what we know already
- New data
  - Can we reach a conclusion or erect an hypothesis on what we have?
- Step-by-step (data-handling problems)
- Our own assumptions, bias

# CRITICAL THINKING & SCIENCE

- Interpreting data fundamentally linked with critical thinking
- There is so much 'information' in most science courses that regurgitation of facts still dominates
  - staff to student in teaching
  - student to staff in assessment
- CJRW and SCP
- The nature of bioethics lends itself to development of thinking skills

# Critical thinking > Problem solving

*Multiple possible  
solutions*

*One solutions*

*Expected model for  
bioethics*

*Naive view of science,  
trying to find THE  
answer*

# APPLICATIONS IN ETHICS/BIOETHICS

- Often (usually?) there is no single 'right' answer to a question - the merit in other positions needs to be identified
- Reaching a particular answer may depend on an individual's values and the premises he/she builds on those values
- Often, these factors are not (or have not) been consciously acknowledged
- 'I don't know much about art but I know what I like'

# SO ... WHAT IS INVOLVED?

- Acknowledge values that contribute to decision
- Ask - do my premises automatically arise from those values - i.e. are my premises valid?
- Also ask - of the information I have been given, which is relevant?
- Can I make a logical, step-by-step argument based on valid premises and relevant information?



# OUR ROLE

- Not to teach the student what to think but how to think
- Enable them to understand why they think what they think
- For a given problem, this is a multi-stage process
- Beware our own views creeping (unconsciously) into the discussion

Start simple



# A Bioethics Question

- One cause of infertility is the inability to produce gametes
- There is a severe shortage of donated ova for use in fertility treatments
- Female foetuses accumulate a life-time's supply of oocytes by *ca* week 13
- It has been suggested that aborted female foetuses could be used as sources of ova for fertility treatments
- Note: in the UK, *ca* 200,000 abortions are carried out per year, 10% of which are at week 13 or later

# EXERCISE

- Do you approve of or disapprove of this suggestion? Write down your immediate answer
- Now spend several minutes working out how you reached that answer - write down the path that you followed in your thinking. What factors contributed to the decision.
- Finally, spend several minutes discussing this with other people - groups of three or four. It is good if different views are held within the group. If that does not happen, imagine how someone might reach a different view from your own

# An Exeter Model

Critical Thinking Mapping (adapted from Gunn et al)

1. The issue presented here is...
2. The stakeholders identified are...
3. The values that need to be considered are...
4. I feel these values are important because...
5. My position on this issue is...
6. I believe this position for the following reasons...
7. I feel these reasons are good reasons because...
8. Others might feel they are not good reasons because...
9. I might disagree with them because...
10. Given the above discussion, my final position on the issue would be...

DISCUSSION/FEEDBACK

# Leicester model(s)

- Ethics considered with Yr2 undergrads. 3 distinct cohorts
- Medical Biochemists make short video on bioethical topic set for them - critical thinking and creativity
- Biological Scientists write 1000 words reflection on a bioethical news story from previous 12 months
- Medical Genetics take part in ethics committee (Mark Goodwin)

# Newcastle model (Pearce, 2009)

- 5 rounds of discussion. During the first 4 rounds no-one may offer objections to any contribution
- Round 1: Participants state initial reaction to issue, but must not give any justification
- Round 2: Students identify those likely to benefit or be disadvantaged by outcome
- Round 3: Students offer fact they think are relevant, including widely-held opinions, but not their own



# Newcastle model (Pearce, 2009)

- Round 4: Students identify the types of ethical arguments being presented (e.g. deontological, consequentialist, virtue-based)
- Round 5: Only at this stage can students publically critique the arguments being made - which views do they think are right/wrong, and why?
- Facilitator(s) circulate to maintain structure of discussion and to add grist as necessary

# Nottingham model (Mepham)

- Ethical Matrix

Stakeholder	Well-being	Autonomy	Fairness
Stakeholder (1)			
Stakeholder (2)			
Stakeholder (3)			
Stakeholder (4)			

# EXERCISE 2

- Carl is a twenty-one year old builder. He is engaged to Julie, and she has recently discovered that she is expecting their first child. In 2004, Carl's maternal grandfather (i.e. his mum's dad) died from Huntington's disease (HD), a late-onset degenerative disease of the nervous system. HD is inherited in an autosomal dominant fashion; in other words it is equally likely to affect men or women and if you do have HD then you have a 50% chance of passing it on to your children. Carl's mum Maureen has decided not to take the test to find out if she got the faulty copy from her father. However, now that he is expecting to be a father himself, Carl is keen to find out if there is any risk that he has passed on the condition.

# EXERCISE 2

- Using the ethical matrix, consider how Carl's decision about whether or not to take the test affects the well-being, autonomy and fairness for each of the stakeholders (Carl, Julie, Maureen and the new child).*

<b>Stakeholder</b>	<b>Well-being</b>	<b>Autonomy</b>	<b>Fairness</b>
Carl, the builder			
Julie, his fiancée			
Maureen, his mum			
The new baby			

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The new baby			

# EXERCISE 2

Stakeholder	Well-being	Autonomy	Fairness
<b>Carl, the builder</b>	<p>If the test says Carl <i>does</i> have pre-symptomatic HD then he can plan his life to minimise the impact of the disease (e.g. retraining for a job where physical strength is less important than in construction).</p> <p>There may be psychological issues if he tests positive. If the test says Carl <i>does not</i> have the mutant gene this may prove to be a psychological boost, but he may experience guilt if his mum (or a sibling) subsequently tests positive.</p>	<p>Carl is within his rights to request a test, but he may equally decide not to – his autonomy is maintained either way around.</p>	<p>There may be insurance implications arising from taking the test – he moves from an “at risk” category to either being “unaffected” or “definitely affected”. In the latter case he may be barred from insurance.</p>

# EXERCISE 2

Stakeholder	Well-being	Autonomy	Fairness
<b>Julie, his fiancée</b>	Carl taking the test will remove the uncertainty that hangs over their relationship at present – there are therefore issues associated with Julie’s psychological and emotional well-being.	Armed with the knowledge that Carl <i>has</i> the HD gene, Julie may decide she cannot go through with the marriage and/or commit to caring for Carl in later life. She may also seek a termination.	Julie may end up being keener than Carl that he has the test because it offers to clarify their situation.



# EXERCISE 2

Stakeholder	Well-being	Autonomy	Fairness
Maureen, his mum	If Carl tests negative (i.e. he does <i>not</i> have the mutation causing HD) this does not prove that Maureen is also in the clear, but if he tests positive then she will almost certainly have the mutation herself and may start showing symptoms quite soon.	Maureen has elected not to have the test, so her autonomy will be infringed if Carl takes the test, and especially if he tests positive, which means she almost certainly has the faulty gene as well.	Knowing she has chosen <i>not</i> to be tested, Carl must conceal the outcome from his mum if he is to honour her wishes. Will he be able to do this once he knows his situation? Should she be actively involved in his decision?

# EXERCISE 2

Stakeholder	Well-being	Autonomy	Fairness
<b>The new baby</b>	If Carl <i>does</i> have HD this will potentially impact Carl and Julie's attitude towards the baby and they may even seek a termination.	At present the discussion has only been about testing <i>Carl</i> not prenatal testing of the baby for HD. Even if Carl does have the faulty gene, there is a 50% chance that the baby does not. Knowing the result of Carl's test will not directly alter the situation for the baby. No additional testing on the baby should be done until he/she is old enough to decide if they want the test.	The baby has inherent value as a human being and Carl's test ought to have no bearing on his/her life at this stage.