

# How the ARC system works

## Practical advice for those used to the NHMRC system

- It's not the NHMRC. It has a logic of its own
- By understanding how the system works you can maximise your chances

### MAIN POINTS

- High on significance of research (not necessarily practical)
- Grant applications need to be more “conceptual”- focus on selling a new idea or model
- Not so high on preliminary data or details
- Better than the NHMRC system to try new directions
- **Style of successful applications is quite different- written for the non-specialist.**

# STEPS

- Assignment to panel members
- Assignment to referees
- Ranking by CoE members
- Consideration of reports and rejoinders
- Limited re-ranking
- Meeting (budgets)

## STEPS- ASSIGN TO PANEL

- Early in the process, public servants read ALL application abstracts to decide which panel(s) they should be sent to.
- This is largely based on RFCD codes
  - BUT a single grant can be sent to members of 2 different panels.
- RFCD codes and keywords- **leave NO DOUBT**.
- **Don't let the methodology be the focus of your abstract-** it could go to a Chemist, Mathematician, etc.
  - (ANIMALS)

## STEPS- ELIGIBILITY SCREENING

- Research conducted in a hospital or clinic involving human patients.
- Research with sole or primary motivation towards curing a disease that affects humans, even if conducted in an animal or *in vitro* system.
- Research in animal models or *in vitro* system which tackles a basic biomedical question, but has implications to understanding or curing a human disease.
- Research in animal models or *in vitro* which tackles a basic biomedical question.
- Research which is aimed at pathogens of significance for veterinary or environmental science.

NOT THE WHOLE STORY (MORE LATER...)

## STEPS- ASSIGN TO SPOKESPERSONS

- Assignment to CoE members- Executive Director
  - Margaret Clayton- marine biologist
    - The functional importance of phenolic compounds in brown algae
    - The reproductive biology of marine algae
    - The biology of polar macroalgae
    - Seaweeds of the Falkland Islands
    - Phylogeny of brown algae
  - (conflicts)
- **For CoE members, not knowing enough about a research area is not seen as a good reason to pull out.**

- Craig Aitkins (UWA)- *plant biochemistry*
- Barry Brook (Adelaide)- *ecology, modelling, biogeography*
- Elizabeth Jazwinska (Johnson & Johnson)- *drug development*
- Michael Jennings (UQ)- *microbiology*
- Peter Koopman (UQ)- *molecular biology, development*
- Harvey Marchant (ANU)- *marine biology, Antarctic*
- Els Meeusen (Monash)- *parasitology, veterinary*
- Mats Olsson (Wollongong)- *field ecology , evolution*
- Bonni Reichelt (Genesearch Pty)- *biotechnology, instruments*
- Marcello Rosa (Monash)- *sensory physiology*
- Jeffrey Schwartz (Adelaide)- *endocrinology*
- Stephen Tyerman (Adelaide)- *viticulture, plant physiology*
- James Whelan (UWA)- *plant molecular biology*

## STEPS

- Your application **WILL** be assessed by a CoE member who does not know your research area (no ifs or buts...).
- This person's opinion will have a lot of weight.

## RANKING BY THE COE MEMBERS

- Each College member gets ~120 grants to read and rank.
- They don't write reports, just give numerical marks to each of 4 criteria.
  - Track record 40%
  - Significance and Innovation 30%
  - Approach and Methodology 20%
  - National benefit 10%
- Each grant is read by 2 College members. You don't get to see their rankings.
- **THEY DO THIS INDEPENDENTLY, AND WITHOUT REFERENCE TO THE REVIEWER REPORTS OR ANY CONSULTATION WITH OTHER MEMBERS**

## Who are your other assessors?

- **2 Ozreaders:**
  - They are experienced, senior researchers who have broad knowledge of your research field.
  - *For example:* All grants assigned to a given Ozreader will be about Embryology. Another will read Clinical Psychology grants, and another will read pure Mathematics grants.
  - They read anything between 4 and 20 grants. They write reports that you get to read.
  - They also give numerical marks for the four criteria, which you don't get to see. These numerical marks are used to generate a ranking (e.g. from 1 to 15).

## Who are your other assessors?

- **2 Intreaders:**

- They are people who have in-depth knowledge of your specific research field, or one technique you are planning to use.
- *For example:* All grants assigned to a given Intreader will be about development of software for image analysis. Another will read grants about autism, and another will read grants about biological applications of nanoparticles.
- They read anything between 1 and 6 grants (most read 1-3). They write reports that you get to read.
- They also give numerical marks for the four criteria, which you don't get to see.
- Again, these numerical marks will result in yet another ranking.

## WAPR- weighted average percentage ranking

- This is the magical number that decides 90% of your grant's fate.
- The numerical marks given by referees or CoE members are irrelevant. What counts is the **ranking** for that particular assessor.

- **PERCENTAGE RANKING**

- |                         |                    |
|-------------------------|--------------------|
| • COE member (120 apps) | Ozreader (15 apps) |
| • Ranking 1- 100        | Ranking 1-100      |
| • Ranking 120- 0.83     | Ranking 15- 0.15   |

## WAPR- weighted average percentage ranking

- The percentage rankings are then weighted according to the number of grants a person read:

- COE members: x 25 (cap)
- Ozreaders= number of grants (x 5 to x 15)
- Intreaders= number of grants (x 1 to x 6)

## WAPR- weighted average percentage ranking

- What this really means:

- It is possible to get a grant even if none of the reports you saw are overwhelmingly positive.
- It is possible NOT to get a grant if the reports you saw sounded positive.

- Ranking may not be apparent from comments

- COE members may have had a different impression- **they are judging something different- the big picture!**

## WAPR- weighted average percentage ranking

- Examples:

|                          |                           |
|--------------------------|---------------------------|
| EAC1: 12 of 102          | 75 of 104                 |
| EAC2: 29 of 129          | 24 of 102                 |
| OZ1: 4 of 4              | 3 of 6                    |
| OZ2: 6 of 7              | 2 of 5                    |
| INT1: 1 of 1             | 1 of 3                    |
| INT2: 2 of 3             | 1 of 5                    |
| INT3: 2 of 2             | 2 of 3                    |
| INT4: 4 of 5             |                           |
| WAPR: 69.7- just made it | WAPR 58.6- not even close |

## RANKING BY THE COE MEMBERS

- YOUR JOB AS AN APPLICANT IS TO CONVINCe THESE 2 PEOPLE TO PUT YOU IN THE TOP 20%.
- WRITE FOR THEM, NOT JUST FOR THE REVIEWERS
- IF POSSIBLE (I.E. IF YOU HAVE WRITTEN EVERYTHING YOU CAN POSSIBLY SAY TO “SELL” WHY THIS IS IMPORTANT RESEARCH), **THEN** WRITE FOR THE SPECIALIST REFEREES.

## STEPS- REPORTS AND REJOINDERS

- ONLY AFTER SUBMITTING THEIR RANKS, the CoE members get to see the referee reports and rejoinders.
- After all referee reports are in, the COE members are provided with a spreadsheet where your 120 grants are ranked according to WAPR.
- They have the opportunity to suggest changes in ranking, to address possible injustices/ discrepancies between referees.
- However, in practice this is **hard to do**, and only a few grants get re-ranked.

## STEPS- REPORTS AND REJOINDERS

- Any re-ranking has to be discussed and approved by the other spokesperson.
  - This person has seen a **different list of grants** from yours, and they may not want to pass your grant over another one they think is better.
- Even so, the maximal change in WAPR that can be done “simply” is around 5 points. Anything else requires a lot of justification.
- **What this really means:**
  - If your grant is in the bottom 70% of the rankings, forget it. For the rest of the process, it is as if it never existed.
  - If your grant is in the top 15%, it is safe.
  - **All re-rankings happen near the cutoff.**

## SUMMARY- RANKINGS

- **IT'S A NUMBERS GAME.** 90% of the fate of your grant is decided numerically.

- If your grant is near the cutoff, you need the support of the COE member. He/ she can argue your grant above or below the line.

= WRITE YOUR GRANT BASED ON THE BIG PICTURE. **MAKE THE COE MEMBER THINK THAT THIS IS IMPORTANT** FOR SCIENTIFIC PROGRESS, FOR AUSTRALIAN INDUSTRY, TO SAVE HUMANKIND, etc.

## RANKINGS- ROLE OF REFEREES

- Don't get the impression that the referees don't count.

- For grants near the cutoff, it is in the referee reports that the COE members will find the reasons to support/ not support a particular grant over others.

- If you want your opinion to count more, accept to read as many grants as possible.

- Remember, the ranking you give to a grant is more important than the text. Use the latter mainly to highlight positive and negative points, including **feasibility** and **novelty** issues.

## **THE MEETING**

- Applications are considered in order of WAPR, until the money runs out.
- At some point, it becomes a balance between number of funded grants and allocated budget.
- To get full or near full budget you need to be in the top 5%.
- If you at the cutoff you may get an amount of money that has no resemblance to what you asked for. You get whatever money is left.
- EXCEPTION: Salaries, particularly of Fellows.

## **SOME PRACTICAL TIPS ON GRANT WRITING**

## THE CRUCIAL FIRST PAGES

- To succeed in the ARC system you have to make your application stand out- AIM BIG!
- Your grant will be read by someone who has seen >100 other ones this year only.
- THE FIRST 1-2 PAGES OF YOUR GRANT ARE WHAT MAKES OR BREAKS IT. Make the reader want to read more.
- The worst thing you can do is to give the readers that you are just refining something, adding detail. Show them that you are **aiming for big things**.
  - *If you can't do this, then maybe you should not apply this time.*

## THE CRUCIAL FIRST PAGES

- Don't get lost in detail (as yet).
- Start it like a TV documentary or magazine article. Make people wonder about what you do. Connect to real-life situations.
- Use abbreviations sparingly (preferably, don't use them at all). Check for readability. Have students to read it.
- Talk about future applications and how this will make people live better, Australia richer, or safer.
- After you set the scene, then give your objectives. Again, **go from general to specific**.

## MEDICAL FOCUS

- Don't leave any room for doubt regarding Clinical/ Medical Overlap.
  - *"disease X affects one in 200 Australians and cost X billion dollars"*.
  - *National Research Priorities*
- NHMRC Overlap is important at 2 levels- formal and informal

## TRACK RECORD- 40%

- By and large, either you have it or you don't.
- However, you can do things to "sell" your track record better. **ADD IMPORTANT INFORMATION.**
- Impact factors OK, but even better is information about things such as:
  - Relative ranking of journal in ISI field
  - Citation rate relative to other similar papers (ISI "Essential Science Indicators")
  - Highlighted by the Faculty of 1000
  - Resulted in invitation to speak at international conference
  - Resulted in a patent for something that people know about
- A bad track record makes it really hard to get a grant. A good one does not guarantee one.

## TRACK RECORD- 40%

- If you have to choose a co-investigator, make sure that this person has a BETTER track record than you.
- If you are in very early career (APD candidate), it is OK to go alone. Write a clear, no-frills application but show some **VISION**.
- International partner investigators OK provided that the person has a stellar track record and a clear role in the project.
  - Don't give the impression that most of the work is going to be done elsewhere.

## TRACK RECORD- 40%

- The ARC system rewards clear **OUTCOMES**.
- If you have spent time in review panels, government task forces, international committees, etc. make sure your application highlights this, and **explain why this is important**. Give the committee some idea of how much time you spent on it.
  - *“I was a member of the International Commission on Classification of Ion Channels”* is OK, but not as good as
  - *“I was a member of the International Commission on Classification of Brain Areas, which after 5 years produced a nomenclature that is now mandatory for the main journals in the field (see <http://...>)”*.

## TRACK RECORD- 40%

- Track record is supposed to be judged relative to opportunity.
- Highlight important work you have done **considering your stage of career** (supervision, committee work, Professional Societies).
  - For example: reviewing papers may be important to say if you are an ECR. If you are a senior academic don't waste space unless you are in an Editorial Board. Talk about something else.
- Use 10.5 to explain if you had career interruptions (e.g. for major medical reasons).

## TRACK RECORD- 40%

- Other tips:
  - In 10.1, write about your main discoveries/ contributions, not about who you are, what committee work you have done, how many papers, where you came from, etc. It's not a mini-CV.
  - In your list of papers (10.2 and 10.3), add a little information about why selected papers are important (but don't go overboard- a few sentences, and only for the real highlights).
    - *This paper was invited as part of a special volume celebrating the centenary of modern exploration of the cerebral cortex. Ours was the only Australian laboratory to contribute, among the 12 World leaders in the field.*
    - *This paper has been cited 25 times in less than 2 years.*
    - *Highlighted as a "hidden jewel" by the Faculty of 1000.*
    - *Cited in a "news and views"*

## FELLOWSHIPS

- In order to get a Fellowship, your **grant** has to be ranked highly.
- Otherwise, you can be brilliant but your application won't even be discussed.
- The committee has a quota of Professorial, ARF/ QEII and APDs to distribute. They are initially assigned in order of merit OF THE GRANT APPLICATION.
- Reassignment happens ONLY if the number of requests within the funded range exceeds the quota.

## OTHER TIPS

- **Big budgets require outstanding science.**
- **APD Fellowships are an excellent opportunity-easier to get than the early career NHMRC equivalents.**
  - **If the grant is ranked in the top 20%, the Fellowship is guaranteed.**
  - **Can be for 4 years.**

## OTHER TIPS

- Make sure your application is COMPLETE. Include your progress reports.
- List of current grants.

## FINALLY

- The ARC system is not better or worse than the NHMRC system. It is simply different. You have to understand its logic before you write an application.
  - **Better system to try new directions**
- It favours the bold. “More of the same” is hard to get funded.
- Write the first pages as if you were explaining your research in a TV interview.
- It relies heavily on a numerical formula. The key component is the relative ranking of a grant, particularly from readers who have the opportunity to see many grants.