

**Career Development Award Fellows  
Survey 2012**

**Report**

Prepared for the Academy of Medical Sciences and the  
Medical Research Council

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# 1 Summary

The MRC Career Development Award fellowship (CDA) provides up to five years' support for post-doctoral biomedical researchers who are not medically trained and who wish to consolidate their research skills and make the transition from post-doctoral research trainee to independent investigator. The MRC and the Academy of Medical Sciences (AMS) commissioned Jenesys Associates to help them to determine the type, level and quality of career support currently available to CDA fellows and to assess the needs of CDA fellows for further support interventions.

## ***Research methodology***

The research methodology comprised:

- E-survey of CDA fellows
- Follow-up telephone interviews with CDA fellows
- Follow-up focus group workshop with CDA fellows
- E-survey of New Investigator Research Grant holders (NIRGS)<sup>1</sup> (surveyed as a control group)

The CDA survey was sent to 52 CDA fellows, 46 of whom responded (89% response rate). The NIRG survey was sent to 69 NIRGs, 58 of whom responded (84% response rate). The surveys ran between 18 June and 30 July 2012. 15 (29%) fellows provided follow-up information: 6 attended a focus group workshop on 10 September 2012 and 9 were interviewed in August and September 2012.

## ***Are CDA fellows prepared for leadership?***

- 16 (35%) fellows said they were 'very well prepared' for a research leadership role in the future. 12 of those were in years 4 to 5 of their fellowship or just finished.
- 19 (41%) fellows said they were 'quite well prepared' for a research leadership role in the future. 16 of those were in years 1 to 3.
- 11 (24%) fellows said they were 'somewhat prepared' for a research leadership role in the future. 10 of those were in years 1 to 3.

## ***Availability and impact of career development support***

In general, CDA fellows agree that career development support is important - 41 (89%) rated it as 'very important' (28; 61%) or 'quite important' (13; 28%) at the current stage in their fellowship. CDA fellows mainly use training courses delivered through their host institutions (39; 85%). These tend to be general in nature and not specific to fellows. Most fellows hear about support schemes from internal sources - 25 (54%) cite human resources or professional development departments, 22 (48%) department administrators and 21 (46%) their head of department or head of research. The subjects and topics addressed by any support schemes are more important than accessibility when fellows are choosing which schemes to use.

## ***Improving the support for CDA fellows***

Local career development support schemes are readily accessible and deliver impact to some degree: 15 (36%) reported 'very positive' impacts and 22 (52%) reported 'fairly positive'

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<sup>1</sup> NIRGs are also early career researchers at a similar stage of post-doctoral training to CDA fellows. They receive a grant to undertake research at a higher education institution, as opposed to a personal fellowship.

impacts. However, responses from the majority of fellows highlight a number of areas in which additional support or new interventions would be welcomed:

1. Defining expectations from the initial stages of a CDA fellowship and ensuring higher education institutions understand and fully support the CDA scheme.
2. Tailoring of career development support to suit the specific needs of CDA fellows.
3. Developmental support for the transition from postdoctoral researcher to independent PI/research leader.
4. Identifying high quality mentors, particularly those who have undergone similar experiences to fellows.
5. Developing personal networks, including with other fellows.

### ***Factors influencing career support needs***

The overriding factors that govern the career development support needs and uptake of CDA fellows are their previous experience before embarking on the fellowship, their local working environment and their expectations. These embrace their previous career path, the extent of their peer network to provide advice and support, their previous independence and proactive approach in seeking advice from not only their peers in their own institution but former colleagues and other professional contacts. However it is the *type* of previous experience that is important, rather than the number of years of experience.

### ***Shaping future interventions***

Any new interventions should recognise the attributes that affect fellows' uptake of and attitudes to career development support, and integrate with existing initiatives and activities. The following issues merit particular consideration:

#### ***1. Connecting CDA fellows with MRC and HEIs***

Clear and consistent communications between the MRC, universities and fellows, before and during the first stages of a fellowship are important, especially for those fellows whose prior experiences have provided them with few opportunities to establish a research identity, leadership skills or effective peer support networks. CDA fellows want to be clear about the expectations on them as fellows, to hear about internal and external support opportunities (fellows believe MRC has a role to play here) and for their universities to better understand their development needs.

#### ***2. The need for tailored support schemes***

CDA fellows are clear that schemes should be tailored to their needs as developing research leaders. Where career development support schemes are delivering benefits, these primarily result in enhanced research reputation, increased confidence and leadership knowledge and experience. Support schemes that have the greatest benefit or were most successful were mentoring, leadership experience, training in grant writing and networking opportunities. The least helpful support schemes were general, compliance-focused training courses. There is also a lack of formal support in the strategic and planning aspects of developing and setting up a research group.

#### ***3. Transition to independence***

CDA fellows made it clear that, in the early stages of commencing a fellowship, the transition from post-doctoral researcher to independent PI and the responsibilities of effectively developing, managing and leading a research group was the biggest step change that they undertook. The size of this step change and the need for career development support was generally independent of age, gender and subject area but not of the previous career path or

specific motivations of those applying for the fellowship. The degree to which fellows feel equipped for this change is also influenced by the support they are given in the initial stages of their fellowship.

#### **4. Mentoring**

Fellows want to be mentored and 35 fellows (76%) have received mentoring during their CDA fellowship, through their institution, a personal contact or their CDA sponsor<sup>2</sup>. However, it is noteworthy that most fellows (24; 63% of those who are mentored) describe their main mentor as being someone who works within their own department and 15 fellows (39% of those who are mentored) have mentors who are the sponsors of their fellowship application. It is also interesting that fellows who are not being mentored have a low level of participation in other forms of career development.

Fellows identified their main mentors by choosing a research leader in their own field or as a result of already knowing their main mentor. 8 fellows said they found their main mentor through a formal mentoring scheme, all of which were internal to the fellow's university. 9 fellows (20%) say that they had not been mentored and 12 (26%) have received limited mentoring.

#### **5. Limited personal networks**

Not only do fellows mainly access career support and mentoring through their institutions they appear to have limited interactions outside their academic sector and host institution. 44 fellows reported their interactions with other sectors. Of these more than 33 (72%) have no interaction with industry or the NHS and 41 (93%) have no interaction with policymakers. Where these interactions do occur they are mainly used to benefit research progress, e.g. by providing access to biological samples or reagents. Apart from through their institutions, fellows also use their peer group, extended professional networks and mentors to find out about support schemes.

These issues have implications for CDA fellows, their universities, the AMS and MRC. The development of a fully effective framework of career development support for CDA fellows will require engagement of all these stakeholders, whether through designing new interventions or by modifying current processes and systems.

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<sup>2</sup> A CDA sponsor supports the fellowship application and provides oversight of the fellow's work for the duration of the fellowship.

## **2 Introduction**

The Medical Research Council (MRC) is a publicly-funded organisation that supports research across the entire spectrum of medical sciences. It receives annual funding from UK Government through the Department for Business, Innovation and Skills and works closely with the Health Departments, the other UK research councils, industry and other stakeholders to identify and respond to the UK's health needs. In 2010/11, the MRC spent £797.7 million on research.

Founded in 1998, the Academy of Medical Sciences (AMS) is the independent body in the UK representing the diversity of medical science. Its mission is to promote medical science and its translation into benefits for society. One of its six objectives is to 'nurture the next generation of medical researchers'. The Academy's expert, elected Fellows - over 1000 - are drawn from the widest spectrum of the medical sciences. The Academy has built a reputation for supporting clinicians who pursue an academic career, in particular through its one-to-one mentoring scheme, which pairs postdoctoral researchers with Academy Fellows. The Academy has started to open up its career development activities more widely to non-clinical researchers and is keen to explore further opportunities in this area.

In May 2012, Jenesys Associates Ltd was commissioned to research the career development needs of MRC Career Development Award (CDA) Fellows, reviewing the support that is currently available and identifying opportunities for new interventions, including extending the AMS's mentoring scheme, which is presently available only to clinical researchers.

### ***2.1 Career Development Award fellows***

The MRC Career Development Award (CDA) fellowship provides up to five years' support for post-doctoral biomedical researchers who are not medically trained (i.e. are non-clinicians) and who wish to consolidate their research skills and make the transition from post-doctoral research trainee to independent investigator. The fellowship includes an option of research training outside the UK, in UK industry, or at another UK research centre, to enable the CDA fellows to acquire new transferable techniques and skills.

### ***2.2 Research aims and questions***

The purpose of the research is to feed into the development of the MRC's and AMS's strategies for developing the next generation of researchers and to inform decisions as to whether mentoring is an appropriate form of support for CDA fellows.

#### ***2.2.1 Research aims***

The two main aims for the research were:

- To determine the type, level and quality of career support currently available to CDA fellows
- To assess the needs of CDA fellows for further support interventions

### **2.2.2 Research questions**

**Aim 1: To determine career support currently available to CDA fellows.**

1. To what degree do fellows feel equipped to forge an independent research career?
2. To what degree do fellows feel that they are leaders, both in their research field and in terms of readiness to run a research group?
3. What support schemes are available to fellows locally and nationally?
4. Which schemes are fellows utilising?
5. Why have fellows chosen to take part in particular schemes and not others?
6. Are support schemes providing tangible benefits? What benefits are important?
7. What interactions have CDA fellows had outside the academic sector or their home institution? What has been the impact of this engagement?

**Aim 2: To assess the needs of CDA fellows for further support interventions.**

8. Are fellows' career development support needs influenced by factors such as geographical location, age, gender, year of award or subject area?
9. Are there schemes in existence to meet their needs? If so, are effectiveness and/or accessibility a problem?
10. Are there communications issues to be addressed?
11. What new interventions or schemes are needed? Who might deliver these? What would be their characteristics?
12. What do CDA fellows understand by mentoring?
13. Do CDA fellows want to be mentored?
14. What would they like a potential mentoring scheme to help them to do or be? Does this match the Academy mentoring scheme's aims and impacts?

### **2.3 Research methodology**

The research methodology used a combination of qualitative and quantitative methods as summarised below.

- E-survey with CDA fellows
- Follow-up telephone interviews with CDA fellows
- Follow-up focus group workshop with CDA fellows
- E-survey with holders of New Investigator Research Grants (NIRGs)<sup>3</sup> as a control group for comparative purposes

The surveys ran between 18 June and 30 July 2012. The workshop took place on 10 September 2012 and interviews took place in August and September 2012.

Details of the methodology, responses to CDA and NIRG e-survey questionnaires, plus the interview and workshop guides can be found in a separate technical report.

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<sup>3</sup> The New Investigator Research Grant (NIRG) provides support for clinical and non-clinical researchers at a similar stage of post-doctoral training to CDA fellows to take their first steps to independence. These grants are awarded for research at higher education institutions, unlike CDA fellowships, which are awarded to individuals and are portable.

## **2.4 Research metrics**

The CDA survey was sent to 52 potential respondents. 46 responded representing a response rate of 89%. 23 (44%) indicated that they would be willing to be re-contacted about the research.

6 CDA fellows attended a focus group workshop on 10 September 2012 and 9 were interviewed. The total of 15 represents 65% of the fellows who were willing to be re-contacted and 29% of the target population.

The NIRG survey was sent to 69 potential respondents. 58 responded representing a response rate of 84%.

## **2.5 This report**

This report<sup>4</sup> has been structured as follows:

- Section 3 - background and profile of the fellows, including the extent to which they feel equipped to forge an independent research career and feel they are research leaders
- Section 4 - career development support that is currently available, such as what schemes are being used and why, and the benefits that they provide
- Section 5 - career development support needs
- Section 6 - experiences of and attitudes towards mentoring
- Section 7 - possible future support interventions, including what a potential mentoring scheme could look like
- Section 8 - overall conclusions

## **2.6 Data**

Due to the sample size being fewer than 100, figures are reported using absolute numbers and percentages. It should be noted that percentages have been calculated on the basis of the number of respondents to each question and that rounding can mean that percentages are sometimes greater or less than 100% in total.

Survey respondents were not forced to answer all questions and whether or not they answered some questions was dependent on responses to earlier questions. Therefore the sample size differs for each questions and the report shows the number of respondents (n=) for each figure.

Quotes from CDA fellows (also referred to as CDAs or fellows throughout the report) are reported verbatim and shown in *italics*.

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<sup>4</sup> This is a report of the findings from the research with CDA fellows. Findings from the NIRG control group are included in the body of the report only where they differ from the findings for the CDA fellows. The responses to the NIRG e-survey are included in the technical report and the key NIRG findings are summarised in Annex A (see page 47).



### 3 Profile of CDA Fellows

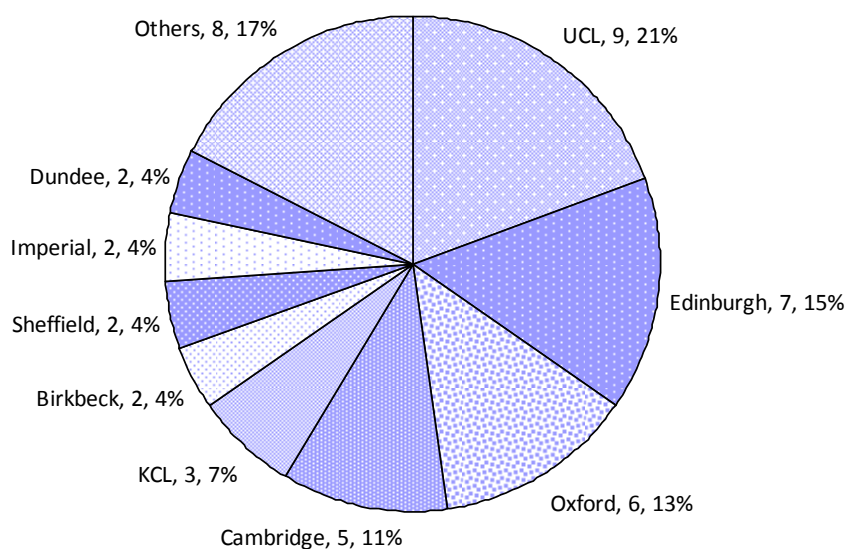
#### 3.1 Demographics

28 (61%) of e-survey respondents were male and 18 (39%) were female, which compares to 58% male and 42% female for the target CDA cohort and indicates that males were slightly more likely to respond to the survey.

31 (68%) of CDA respondents were aged between 30 and 39 and 9 (20%) aged 40 to 44; others chose not to state their age. The NIRG group were slightly older, with 44% aged between 30 and 39 and 33% aged 40 to 44.

As shown in Figure 3.1, 27 (60%) fellows were based in UCL, Edinburgh, Oxford or Cambridge universities. The 'other' universities with 1 fellow each were: Babraham Institute, Leeds, Leicester, London School of Hygiene and Tropical Medicine, Manchester, Royal Veterinary College, Sussex and York.

**Fig 3.1 University in which CDA fellows are based (n=46)**



In addition to the job title 'CDA Fellow', 20 (44% of total respondents) fellows had the job title 'Research Fellow' and 8 (17%) had the job title 'Lecturer'. 2 (4%) were called 'group leader' and 12 (26%) reported additional individual job titles linked to their particular department or environment e.g. College Fellow or Director of [name of department, centre or institute].

41% of NIRGs held the job title 'Lecturer' and 20% held the title 'Senior Lecturer'. No CDA fellows held the latter job title. 12% of NIRGs had the title 'Research Fellow'.

30 (65%) fellows were in years 1 to 3 of their fellowship, 14 (30%) were in years 4 to 5. 2 (4%) were just finishing or had finished.

**Fig. 3.2 Stage of CDA fellowship (n=46)**

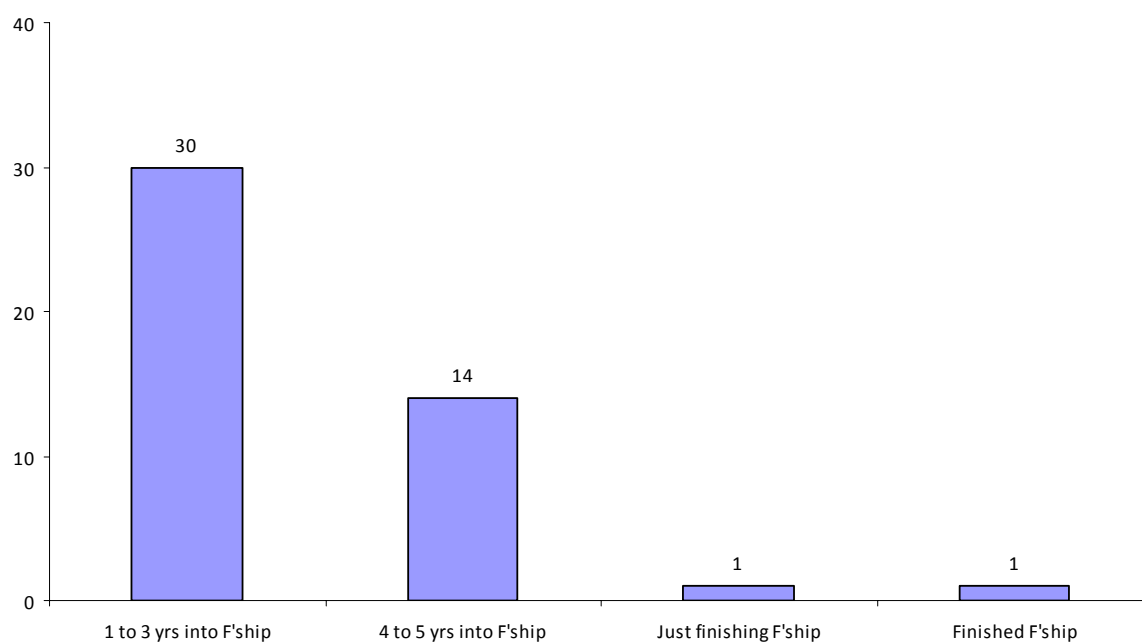


Fig. 3.3 shows the fellows' research subjects categorised by MRC Health Board.

**Fig 3.3 CDA fellows by MRC Health Board (n=46)**

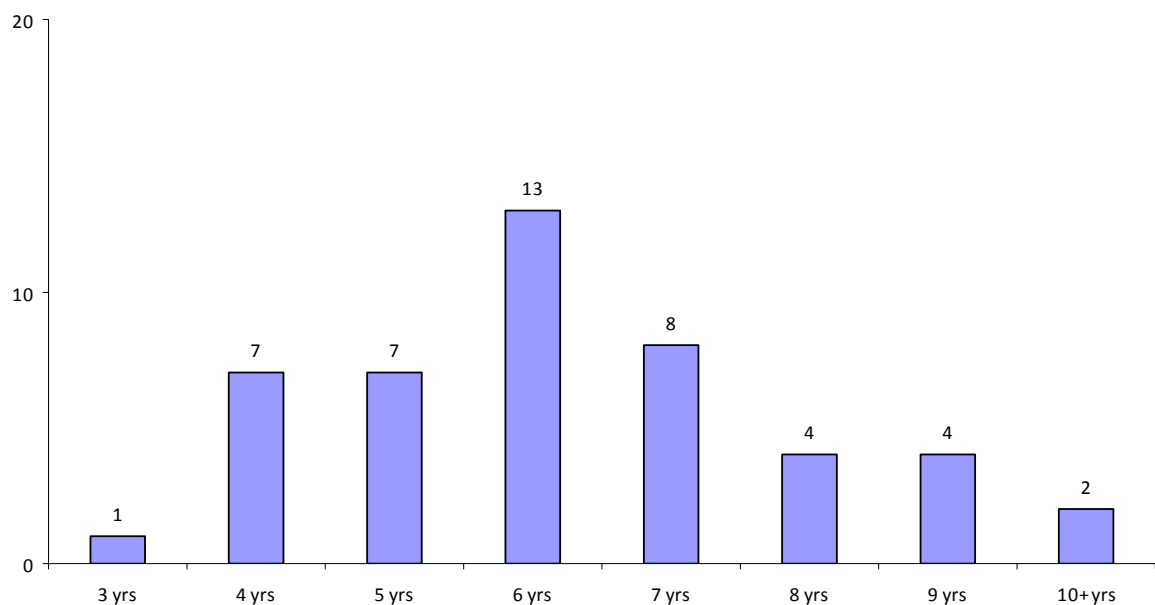
	<b>No.</b>	<b>Percentage</b>
Infections & Immunity	7	15%
Molecular & Cellular Medicine	20	45%
Neurosciences & Mental Health	14	30%
Population & Systems Medicine	5	11%

### 3.2 Previous experience

27 fellows (59%) had 3-6 years post-PhD experience when they were awarded their fellowship. 17 (37%) had 7 years or more post-PhD experience. None reported less than 3 years experience.

Eligibility for the CDA scheme is 3-6 years post-PhD experience at time of application. In some cases this could mean the fellowship actually being awarded 7 years after a PhD is completed. Furthermore, allowance is made within the eligibility criteria for researchers returning after a career break or changing research fields. These factors mean that some fellows have more than 6 years post-PhD experience at the time of their award, as fig. 3.4 shows.

**Fig 3.4 No. of years post-PhD experience at time of award (n=46)**



22 fellows (48%) had moved research organisations. The majority moved at the start of their fellowship with a small minority moving during their CDA fellowship. 14 (30%) had moved from a research organisation that was based outside the UK to take up their fellowship.

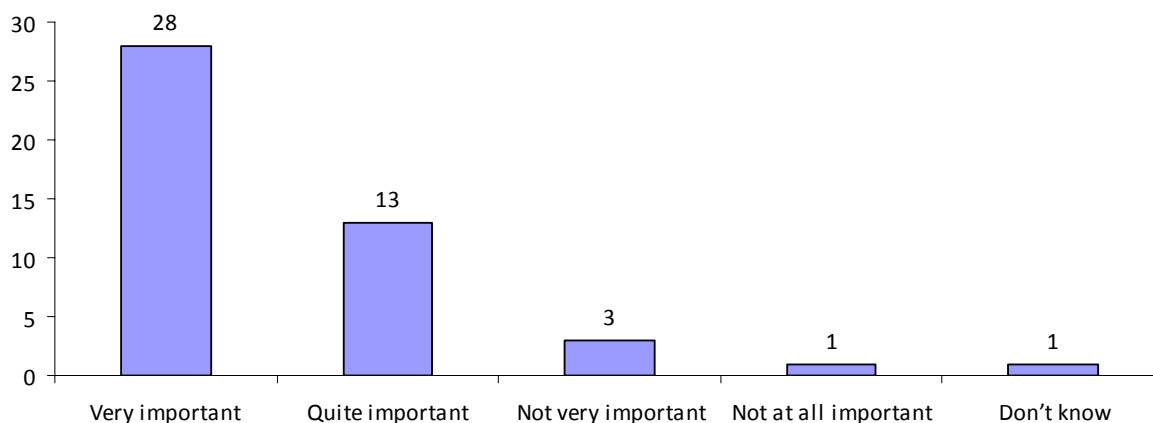
### 3.3 Importance of career development support

This section addresses the question:

- **How important is career development support for fellows?**

CDA fellows were asked to rate the importance of career development support at the current stage of their career as shown in fig. 3.5. 28 fellows (61%) said it was 'very important' and 13 (28%) said it was 'quite important'. Of the 3 (7%) who said it was 'not very important', one had finished and another was in the final year of their fellowship. The third was in year 3 and said they were well supported by their university, implying that they did not need any further support.

Fig. 3.5 Importance of career development support for CDA fellows (n=46)



The fellow who said career development support was not at all important explained their answer as follows: *I think career development support is important at the very beginning of the award. Near the end of the award (my stage), the key decisions determining career development have been taken.*

### 3.4 Readiness for research leadership

This section addresses these questions:

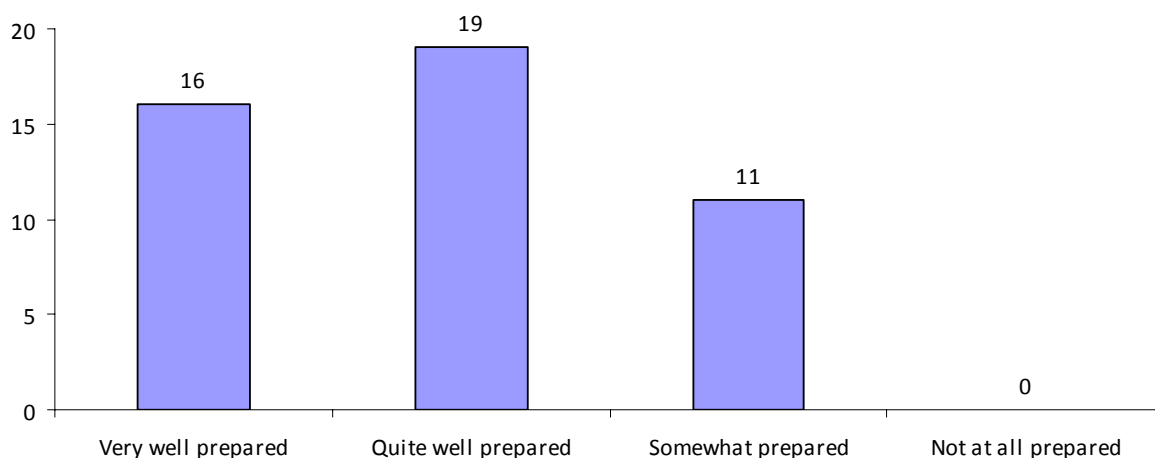
- **To what degree do fellows feel equipped to forge an independent research career?**
- **To what degree do fellows feel that they are leaders, both in their research field and in terms of readiness to run a research group?**

CDA fellows were asked to rate how prepared they feel to undertake a research leadership role in the future. As fig. 3.6 below shows, 16 (35%) fellows said they were 'very well prepared' for a research leadership role in the future. Of these, 12 were in years 4 to 5 of their fellowship or just finishing or finished and 4 were in years 1 to 3. All but one of the fellows who were 'very well prepared' had undertaken career development support in a range of subjects. One fellow who was 'very well prepared' said it had not occurred to them to undertake any career development support during their fellowship. It may be relevant that they had more than 6 years' post-PhD experience at the start of their fellowship.

19 (41%) fellows said they were ‘quite well prepared’ for a research leadership role. 16 of these were in years 1 to 3 of their fellowship and the other three were in years 4 to 5, including one whose fellowship was just finishing. Of those who were ‘quite well prepared’, two had undertaken a limited amount of career development support (e.g. 2 days in total throughout their fellowship). All the others had undertaken a range of career development support.

11 (24%) fellows said they were ‘somewhat prepared’ for a research leadership role. 10 were in years 1 to 3 of their fellowship. The fellow who was in years 4 to 5 had recently moved institutions and commented about a lack of career development support at their previous university. However they said that the emphasis on career development support in their new workplace was much greater. The most common explanation given by those fellows who felt ‘somewhat prepared’ was a lack of training in management or leadership specifically linked to their career situation, i.e. the transition from post-doctoral trainee to independent researcher. Most fellows in this category had less varied experiences of career development support than those who were ‘very well’ or ‘quite well’ prepared. One fellow who said they had not sought or undertaken any career development support also said that their institution had not provided them with any details of opportunities for training.

**Fig. 3.6 CDA fellows’ readiness for a future research leadership role (n=46)**



Fellows’ explanations for feeling ‘very well prepared’ highlighted the importance of having established a research group and having achieved some tangible research outputs. Becoming a Principal Investigator (PI) is an important milestone. It appears that fellows are growing in readiness for leadership throughout their fellowships and some may feel ready before PI status is achieved as they are already assuming many of the responsibilities of a PI. The most widespread view is that leading a research group actually demonstrates and confirms leadership readiness and producing tangible research outputs is also important. In interviews fellows said having tangible outputs enhances their reputations and makes the sustainability of their research more likely.

*I am now a tenured lecturer and have established a funded research group consisting of post docs and students.*

*I have good experience in running a research group, graduating PhD students, obtaining funding, and participating in conference organisation, grant/paper reviews and expert consultancy panels.*

*My CDA fellowship helped me to gain training as a group leader. I have been able to supervise the work of students and post-docs and to have the time to think how to develop my work in the medium/long term.*

*I've had over 4 years of running my own lab, and have supervised various different types of staff members/students (postdocs, technicians, PhD students, undergrads). My day-to-day job involves most of the things that I would be doing as a PI, including grant/paper reviewing, grant/paper writing, travelling to give talks, attending conferences, and outreach. Research-wise, the CDA has given me the resources to produce papers and develop ideas.*

Explanations for feeling 'quite well prepared' were similar, but indicated that fellows' research groups and/or research programmes were still developing, with publications and further funding again being cited as measures of achievement.

*I feel that in general I'm getting used to the PI role but until I've published from my own lab and secured a further major grant I won't feel like I'm fully up to speed.*

*Everything is in place for me to be successful in the future - collaborations, my lab, and my research questions. One or two publications in the near future will really help me to be very well prepared.*

*I have, in my opinion, quite successfully defined an area of research I will work in for the foreseeable future and set up a research group - now the next two years will tell whether I can transform this into a research programme with sustained funding.*

During the interviews and workshop, fellows identified an important benefit associated with the CDA fellowship to be the 'freedom' it offered them from the duties associated with a university position where teaching and administrative duties are greater. The fellowship award allowed them to concentrate on research for five years, enabling them to get the best possible start in developing and leading a research group whilst increasing their reputation in their chosen field.

*It allowed me to stay in the laboratory without the additional 'burden' of lecturing that could detract from the aims of the award, and my career.*

Interview and workshop findings suggested that fellows' survey answers correlate to the nature of their experience prior to fellowship, i.e. the scale of their transition to independent researcher, as well as the institutional support they receive during their fellowship. These factors are explored in more detail below.

### **3.4.1 Transition from post-doctoral researcher to Principal Investigator**

In response to the survey findings, the interviews and workshops sought to identify specific challenges that CDA fellows face when it comes to readiness for research leadership. All interviewed fellows and participants in the workshop made it clear that, in the early stages of commencing a fellowship, the transition from 'Post-doc' to 'Independent PI', with its responsibilities for effectively developing, managing and leading a research group, was the biggest step change that they undertook; a number likened it to a change in career. The size of this step change influences fellows' career development support needs, and was generally independent of age, gender and subject area but not of the previous career path or specific

career development motivations of those applying for the fellowship. Fig. 3.7 outlines the types of prior experience that appear to particularly affect readiness for leadership.

**Fig 3.7 Prior experience and its impact on readiness for research leadership**

<b>Experience</b>	<b>Least likely to be ready for research leadership</b>	<b>Most likely to be ready for research leadership</b>
<b>Research status</b>	CDA is direct continuation from PhD / post doc	Independent fellowship prior to CDA application
<b>Research reputation</b>	None or limited	Already built a functioning research group
<b>Networks</b>	Interactions only to assist research	Extensively networked within research field, funders, other sectors etc.
<b>Leadership experience</b>	None or limited	Already developed a research group

It was clear from interviews that fellows embarking on a CDA fellowship who had been exposed to leadership positions, and in some cases already established a reputation in their field prior to application, had less difficulty in making the transition to independent researcher, particularly if they had already established a wide network of peers who could advise them on a range of career development issues and opportunities. For example:

*I was experienced coming into my CDA fellowship having already completed a previous fellowship, already acquiring reputation in my area amongst my peers and having a strong professional network I could call on for advice. As such learning and applying the skills required to set up my own research group were not new.*

Comments from fellows in years 1 to 3 of their fellowship indicated that it was important to have effective career development support during the early stages of the fellowship to aid the transition from post-doctoral researcher to Independent PI.

*It [career development support] builds my expertise and confidence in being able to run a research team and now I am running one and learning more to become better at what I am doing. The major obstacle in my transition from a postdoc to a PI was not a question of what research I should be doing, rather how to organize and supervise a team of people to do that research, handle the grant budget, have teaching responsibilities. Unfortunately, my postdoc career did not provide much training for this and therefore the career development support was crucial for making this transition.*

*It has taken a long time to set up the lab and get things sorted. I am now getting data coming through, which is great. Given this took up most of my first two years, I am now also taking on further responsibilities within the department (i.e. involved in a couple of committees) to get a better handle on these types of roles. I have also been learning more about leadership related to some of the points listed below.*

CDA fellows indicated that their reputation and standing with peers reassured them that they were at an appropriate level of readiness to be research leaders. As such, research outputs

are important, as are networking opportunities. Fellows said they value the opportunities for interaction with others offered by the MRC Annual Symposium where they can share experiences, ideas and contacts with fellows and other researchers in a similar position or at the same career stage.

### **3.4.2 Institutional support**

Tenure has been given to a number of CDA fellows by their host institution. The award of tenure was identified in the e-survey, interviews and workshops as a factor that influences the readiness of a small number of fellows to forge an independent research career. The main explanation for this is the institutional recognition and security that comes with tenure e.g. being categorised as an academic as opposed to a post-doc or being able to sit on committees.

Fellows who did not regard career development support as very or quite important (see section 3.4 below) indicated in interview that for them once tenure has been achieved then formal career development becomes less important because of the job security that tenure affords. However, an alternative view was put forward by some of the fellows who regard career development support to be important. They pointed out that once tenure has been granted university duties can, in some instances, limit both the research freedom originally offered by the award and the time available to undertake career development activities.

### **3.5 Summary**

A total of 35 (76%) fellows said they were 'very well prepared' or 'quite well prepared' for a research leadership role in the future. Most (12 out of 16) of those who were 'very well prepared' were in years 4 to 5 of their fellowship and most (18 out of 19) of those who were 'quite well prepared' were in years 1 to 3. 41 (89%) fellows rated career development support as 'very important' or 'quite important' at the current stage in the CDA fellowship.

The transition from post-doc to independent researcher is the most significant challenge that fellows have to overcome. The degree to which they feel equipped to forge an independent career is influenced by their previous experience and the support they are given, particularly in the initial important stages of their fellowship. Fellows determine their readiness for leadership on the basis of the extent to which they have established and led a research group and delivered research outputs. The latter are important for peer recognition and sustainability reasons. For a small number of fellows, securing tenure is deemed to be an important factor in achieving institutional recognition.

Fellows suggested that the quality of the support provided in the initial stages of the fellowship could be an important factor in aiding the transition to independent researcher.

Fellows have indicated that their readiness for research leadership would benefit from institutional support that was less general and more closely aligned to the developmental aims of individual fellows or the CDA scheme.



## 4 Current career development support

This section addresses these questions:

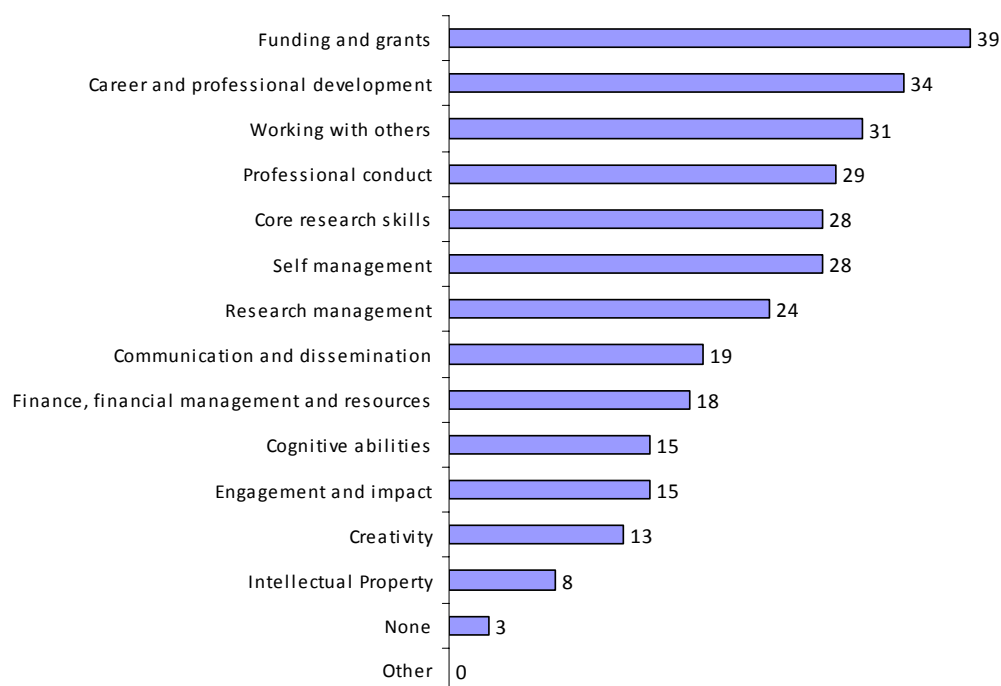
- **What support schemes are available to fellows locally and nationally?**
- **Which schemes are fellows using?**
- **Why have fellows chosen to take part in particular schemes and not others?**
- **What interactions have fellows had outside their academic sector or home institution?**
- **Are support schemes providing tangible benefits? If so, what benefits are considered important?**

### 4.1 Subjects and types of support

The e-survey asked fellows to select the subjects in which they had received career development support during their CDA fellowship. They were asked to select from a list based on the categories described in the 2008 *Concordat to Support the Career Development of Researchers*, which is an agreement between funders and employers of researchers in the UK to support good management of researchers and their careers. Through Research Councils UK, the MRC is a signatory to this concordat.

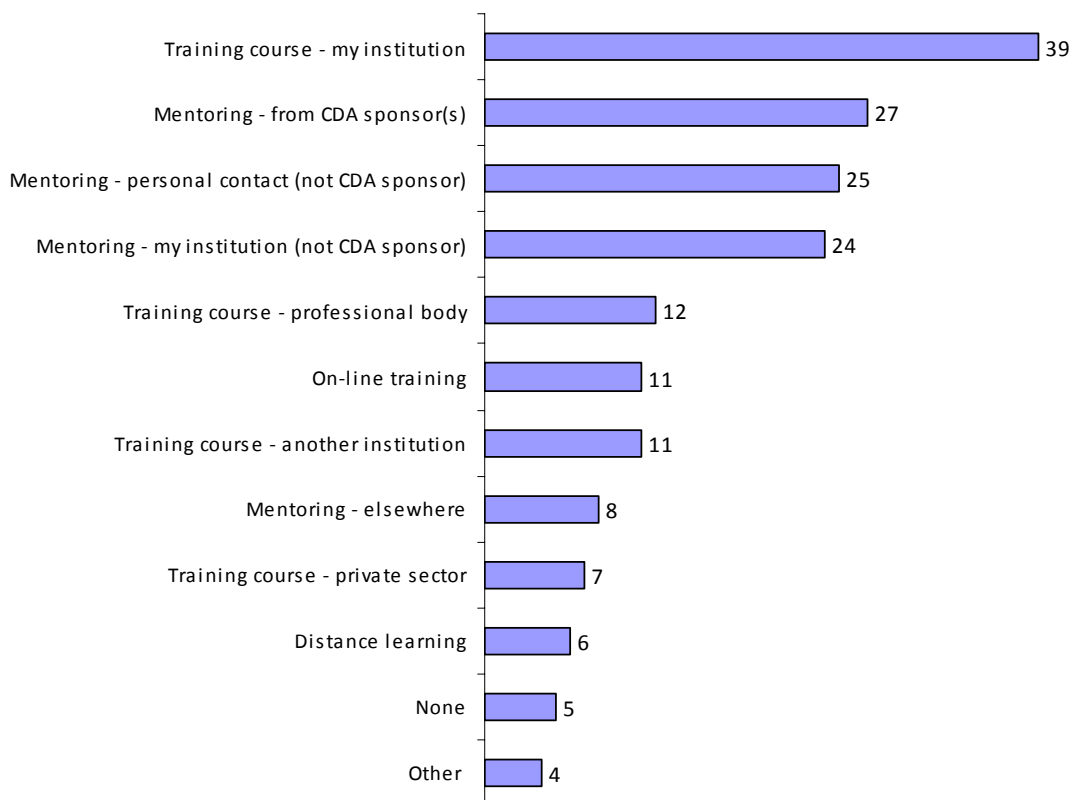
Fig 4.1 shows that the most common subject in which career development support had been undertaken was 'funding and grants e.g. grant applications, sources of funding', which was selected by 39 (85%) fellows. 34 (74%) selected 'career and professional development e.g. career management, responsiveness to opportunities, networking, establishing a reputation' and 31 (67%) selected 'working with others e.g. team working, people management, supervision, mentoring, leadership, collaboration, equality and diversity'. 3 (7%) fellows selected 'none' but not other, which implies they had not used any support.

**Fig 4.1 Subjects - current uptake of career development support (n=46)**



When asked about the types of career development support they had undertaken, 39 (85%) fellows selected 'training course provided by my own institution' as the most common type of support. 27 (59%) selected 'mentoring by sponsor(s) for my CDA application'<sup>5</sup>, 25 (54%) selected 'mentoring organised through personal contact (other than my CDA sponsor)' and 24 (52%) selected 'mentoring organised through my institution other than my CDA sponsor'.

**Fig 4.2 Types - current uptake of career development support (n=46)**



The career development support that fellows received could not be categorised by institution, as different experiences were described by fellows at the same career stage from different departments or research groups of the same institution.

## **4.2 Identifying and selecting support**

30 (65%) fellows said it was 'fairly easy' or 'very easy' for them to find suitable career development support. 6 (13%) said it was 'fairly difficult' or 'very difficult' and 8 (17%) said it 'varies'. Explanations from those who selected fairly or very difficult or varies indicated that while it is relatively easy to find general training courses through universities, it is more difficult to identify support specific to the developmental needs of CDA fellows throughout their fellowships.

*There are lots of training courses provided by the University as part of the Robert's Agenda but often these courses are very general and it is difficult to find courses directly related to research career in biology/biomedical science.*

<sup>5</sup> In this context a 'sponsor' is someone who is a named sponsor on a fellow's CDA application, they are neither a mentor nor supervisor, but provide oversight of the fellows integration into the research organisation.

*Additional mentorship would be great. Apart from Uni courses, which can be helpful, there is very little offered. Research-specific training would be appreciated. (As opposed to general management training.)*

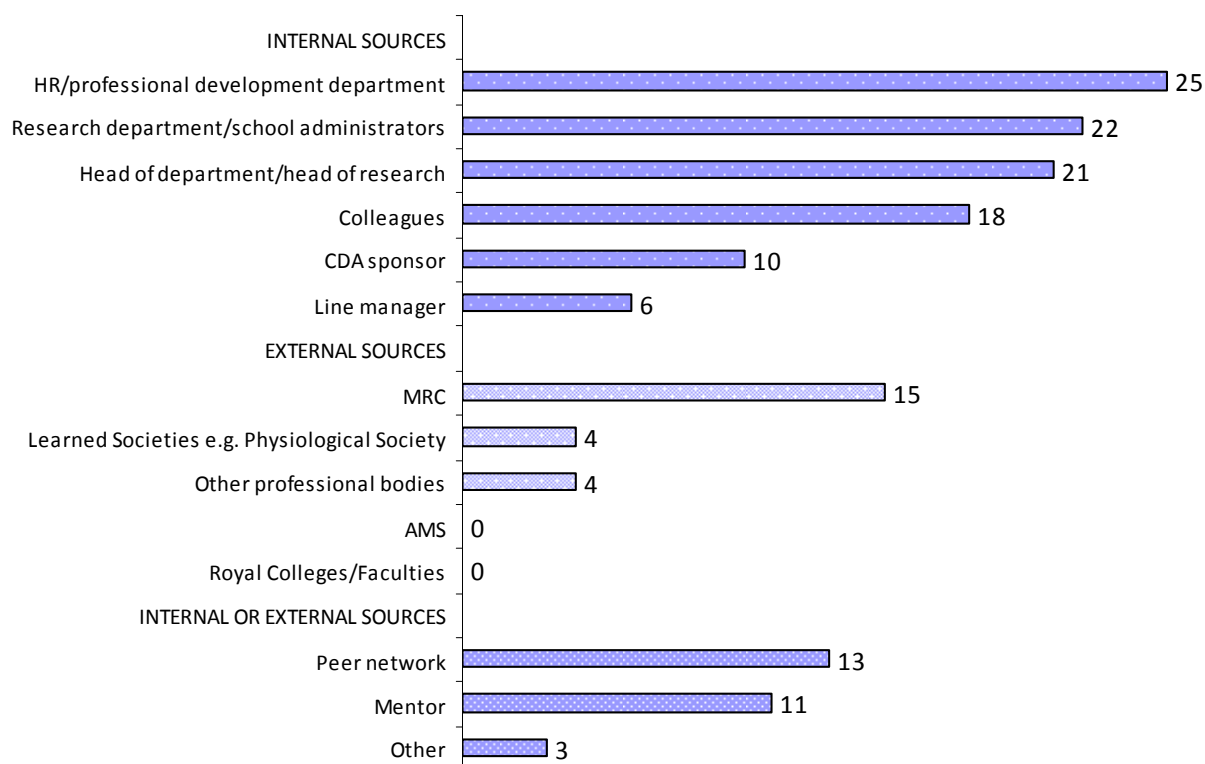
*I am aware of training courses both locally and further afield so in principle these are fairly easy to access, although in my experience these are often not well targeted and so I would say finding genuinely useful training is fairly difficult.*

When asked about how they found out about career development opportunities, fellows were most likely to select sources internal to their own institutions. The dominance of internal sources of information corresponds to training from their own institutions being the most common type of support used by fellows.

As fig 4.3 shows, fellows selected their institutions' 'human resources or professional development departments' as the most commonly-used source of information (25 fellows; 54%), followed by 'department administrators' (22; 48%) and 'head of department or head of research' (21; 46%). In comparison, for NIRGs the most common internal source of information was 'colleagues' (54%).

External sources were less popular than internal sources; MRC was the most popular external source of information (15; 33%) as shown in fig. 4.3. 'Mentors' (11; 24%), 'peer network' (13; 28%) and 'other' could be internal and external. Of the 4 (9%) fellows who selected 'other', 3 (7%) had not undertaken any career development support and one had used a web search.

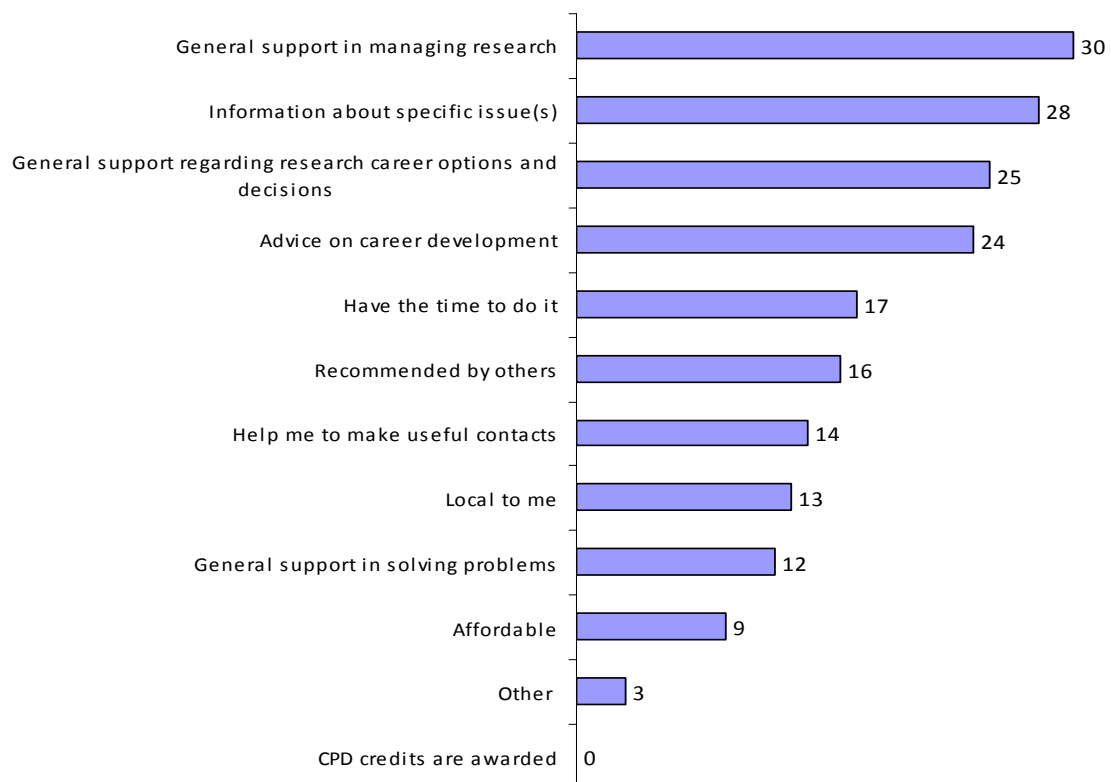
**Fig. 4.3 Sources of information about career development support used by CDA fellows (n=46)**



Fellows were also asked to select the criteria they used when deciding to undertake career development support. Fig. 4.4 below indicates that the subject or topic is more important than accessibility when choosing support. The most common criteria were requiring 'general support in managing research' (30; 65%), followed by 'information about specific issues' (28; 61%) and 'general support regarding research career options and decisions' (25; 54%). One of the fellows who answered 'other' had not used any support and said it was '*not applicable*', the other answers were '*It is not going to take up a lot of time*' and '*Probationary requirement for job*'.

9% of NIRGs said they had undertaken compulsory training in teaching in order to become a lecturer. This was not mentioned by any CDA fellows and is indicative of differences between the roles and responsibilities of NIRGs and CDAs.

**Fig. 4.4 Criteria used to select career development support (n=46)**



8 (17%) fellows selected reasons for why they had not undertaken any career development support as shown in Fig. 4.5 below. Of those who selected 'other reasons' one was 6 months in to their fellowship and had not yet identified any opportunities or heard about any from their institution. Another had been offered a Lecturer position at the end of their fellowship and did '*not feel the need of undertaking any career development support*'. A third said '*I prefer to use my peer network*'. The fourth indicated that they had not been able to access mentoring or training at their previous institution, but this situation had now changed.

**Fig. 4.5 Reasons for not having undertaken any career development support (n=8)**

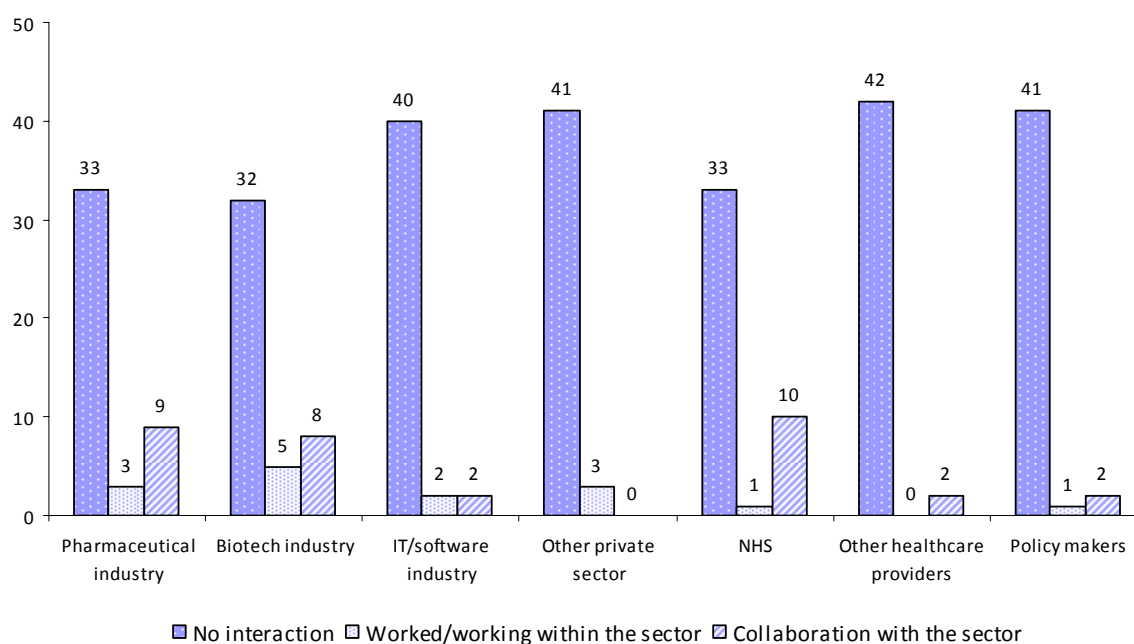
Reasons	No.
I have not identified any support that is relevant to my situation	2
There is no support offered locally	1
Lack of time due to work commitments	3
Lack of time due to other commitments	3
It has not occurred to me to undertake or explore career development support	1
Other reasons	4

NIRG responses to this question indicated that lack of time and not having identified any relevant support were the main reasons for them not undertaking any career development support.

### 4.3 External interactions

The CDA fellowship includes an option for fellows to undertake research training outside their 'home' institutions in order to acquire new transferable techniques and skills. Therefore, MRC were interested to know about the interactions that CDA fellows have had with other organisations and sectors, including universities other than their own. 44 fellows answered the question asking them to report other sectors they have interacted with (see fig. 4.6). The term 'interaction' was not further defined or specified, which allowed fellows to make their own interpretations.

**Fig. 4.6 Interactions with other sectors (n=44)**



CDA fellows have had limited interactions outside the academic sector or their home institutions, with between 32 fellows (73% of respondents to this question) and 41 (93%) having no interaction with industry, NHS or policy makers. 56% of NIRGS said they work or

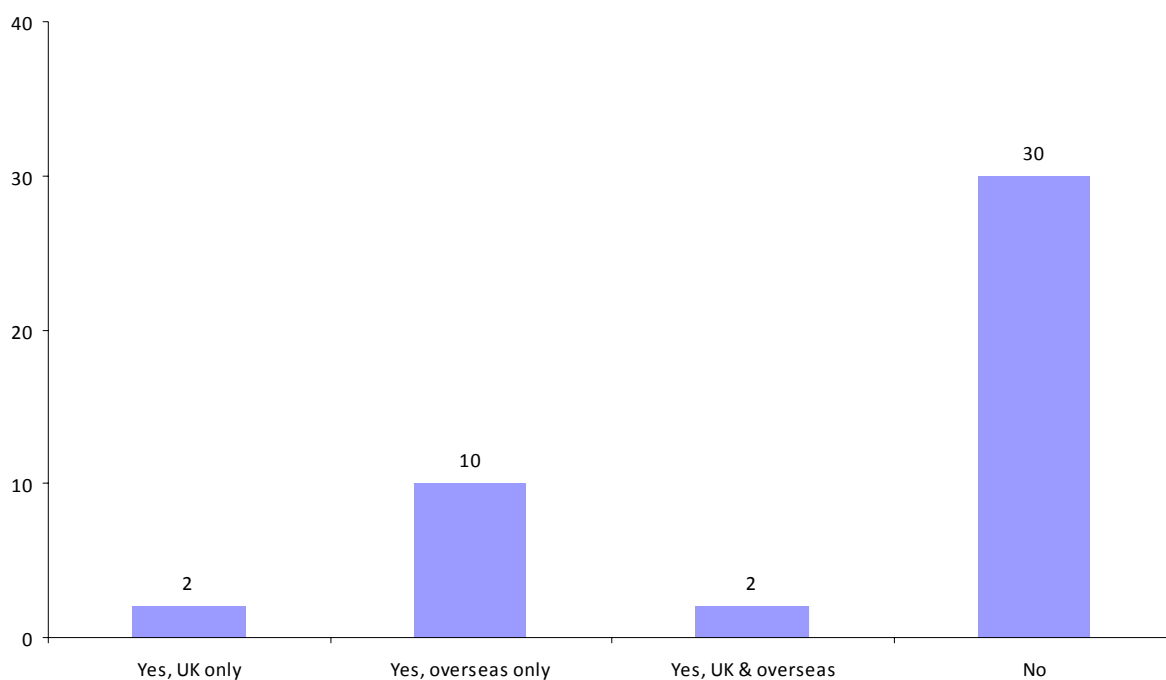
collaborate with the NHS compared to 25% of CDA fellows, which may be partly due to the clinical backgrounds or clinical focus of some NIRGs.

Where they had occurred, fellows' interactions with these sectors were varied. 25 fellows described interactions which included: clinical and industry collaborations on research projects e.g. CASE studentships; enhancing experimental techniques and using techniques not available at their host institution; liaison with patients (through healthcare professionals); and collaborations with regulatory agencies. One fellow described a commercial impact of developing two products through a private company and their university IP department.

Where cross sectoral interaction had taken place 23 fellows selected the main benefits as: 'access to biological or clinical samples' (13; 57%), 'access to reagents, organisms, datasets' (11; 48%) and 'learnt a new skill, methodology or technology' (10; 44%). For NIRGs the main benefits were 'gained knowledge of working with others' and 'access to reagents etc.' both selected by 49% of NIRGs. In contrast, 22% of CDAs selected 'gained knowledge of working with others'.

To explore interactions with other universities, fellows were asked if they had any opportunities during their fellowship to spend 5 or more days working at another academic institution in the UK or overseas. Fig. 4.7 illustrates that fellows were predominately 'home' institution based. 14 fellows (32% of respondents to this question) had spent more than five days at another academic institution, mainly to enhance and learn new experimental techniques, work with collaborators and to access equipment not available at their host institution.

**Fig. 4.7 Five days or more spent working at another academic institution (n=44)**

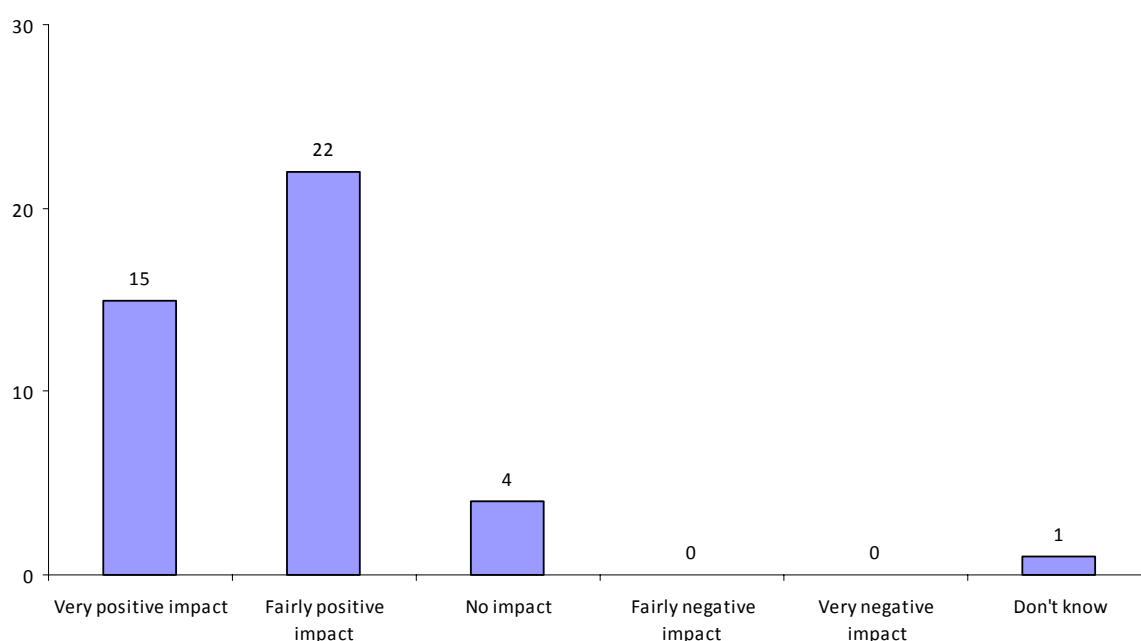


In interviews and the workshop, fellows indicated that one reason for limited external interaction could be personal circumstances such as where it may not be practical to spend significant amounts of time away from their family environment.

#### 4.4 Benefits and impacts of career development support

42 fellows responded when asked about the overall impact that career development support has had on their career progression. Of these, 15 (36%) selected a 'very positive' impact and 22 (52%) selected 'fairly positive'. 4 (10%) said it had had 'no impact' as fig. 4.8 shows. One fellow who selected 'no impact' had recently moved from an institution where they received no career development support; one explained it was too early to say; and another, in years 1 to 3, said they were in the same role as at the start of their fellowship. One fellow answered 'don't know' and indicated it was too early to say.

Fig. 4.8 Overall impact of career development support (n=42)



Explanations given for 'very positive' or 'fairly positive' impact on career progression included: developing the skills to build up a research group; creating a reputation as a researcher; and obtaining follow-on research funding.

*All support received has enabled me to be an independent successful researcher with an international reputation in my field.*

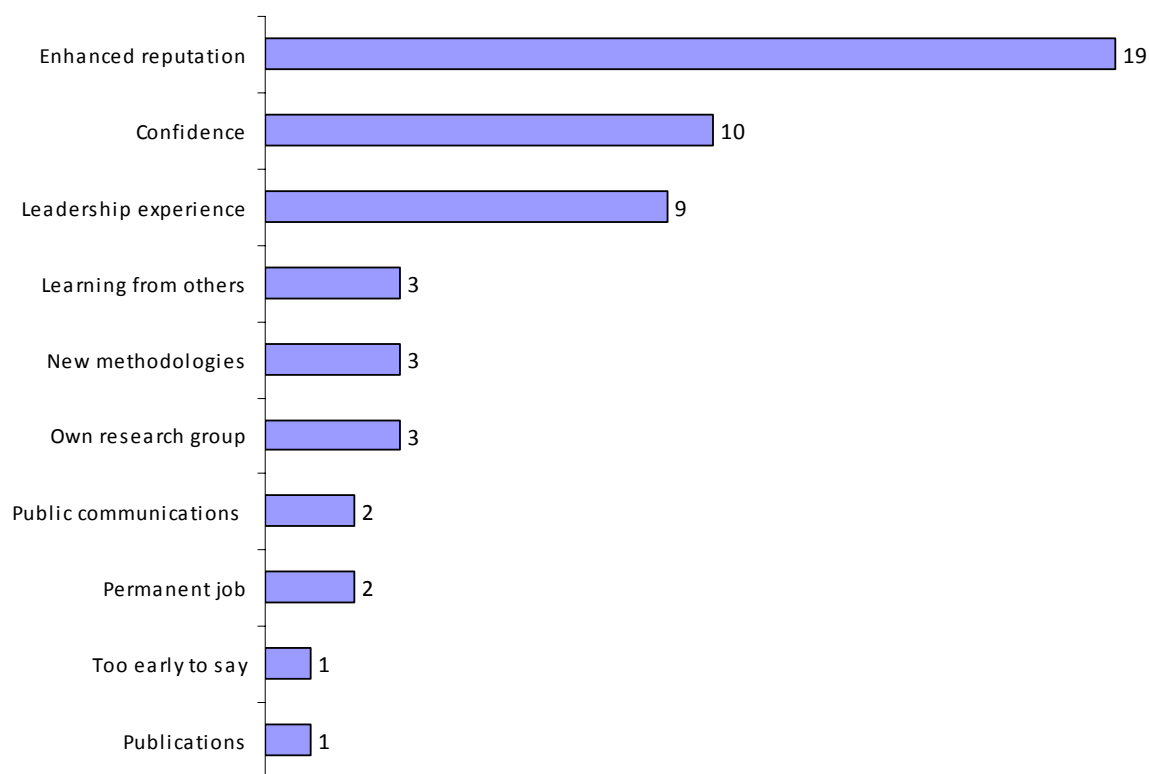
*Help with grant writing has unquestionably improved the success rate of my applications.*

*It is a big step from post doc to CDA and it has been a great help to me to have a support network of training opportunities and mentors.*

Fellows were also asked to describe the main benefits of career development support. Their answers were categorised as shown in Fig. 4.9. The most common of these were:

- Enhanced research reputation leading to new funding or collaborative research
- Increased confidence generally and specifically to lead a research team or achieve research goals
- Supervisory and leadership knowledge and experience

**Fig. 4.9 Benefits of career development support (n=42)**



#### **4.5 Successes and challenges**

Fellows said that the most successful aspects of career development support or those which had the greatest benefit were:

- Mentoring, because of the specific and very relevant nature of advice received
- Leadership experience gained in setting up and managing a research group
- Training in grant writing and/or funding at the MRC Fellows' Symposium
- Contacts made and networking, including opportunities for new collaborations or publications

Most fellows valued the operational assistance of their host institution but believed that university training courses such as those on employing and managing people were too general and overly focused on regulatory matters. Fellows strongly indicated they want to learn about best practice and not just basic procedures. As such, they said that the least successful aspects of career development support or those which had the least benefit were:

- Training courses which are too general and are perceived to be more about compliance than addressing the developmental needs and career aspirations of early stage biomedical researchers



- A lack of university support specifically focused on best practice in setting up and establishing a research group and reputation, particularly during the early stages of a fellowship

The interviews and workshop also highlighted the benefit of career development support in reducing any feelings of isolation and boosting confidence especially in the initial stages of a CDA fellowship.

#### **4.6 Summary**

Most of the support schemes used by fellows are delivered through their host institutions. These tend to be general in nature and not specific to the needs of CDA fellows. They also focus on operational issues as opposed to the development of independent researchers. A majority of fellows hear about support schemes from internal sources, usually within their department or research group, which is consistent with most of the schemes they use being delivered by their own institutions.

The subject and topics addressed by any support scheme are more important than accessibility when fellows are choosing what schemes to use.

There is considerable scope for fellows to extend their cross sectoral networks. They have had limited interactions with other sectors or institutions that could broaden their understanding of how their research and careers could be further developed. Where these interactions occur they are used to benefit research progress rather than to enhance career development.

Despite the lack of tailored support, some schemes are delivering benefits for CDA fellows. The main outcomes from support are enhanced research reputation, increased confidence and leadership knowledge and experience. Support schemes that have the greatest benefit or are most successful were described as mentoring, leadership experience, training in grant writing and networking opportunities. Support schemes that have the least benefit or were least successful were general, compliance-focused training courses and a lack of university training focused on best practice in developing and setting up a research group.

## 5 Career development support needs

This section addresses the following questions:

- **Are fellows' career development support needs influenced by factors such as geographical location, age, gender, year of award or subject area?**
- **Are there schemes in existence to meet their needs? If so, are effectiveness and/or accessibility a problem?**
- **Are there communications issues to be addressed?**

### 5.1 Influencing factors

Correlation of the e-survey responses with the profile of the CDA fellows indicated that uptake of and need for career development appear to be uninfluenced by geography, age, gender, number of years' post-PhD experience or subject area. As with readiness for research leadership, the type of previous career experience, particularly leadership experience, is an important factor. The e-survey findings indicated that the requirement for support in establishing a research group was greatest in fellows who were in years 1 to 3 of the fellowship.

The e-survey also indicated that the expectations of individual fellows and their attitudes to career development support as well as the influence of their local environment were of greater significance than location, age, gender, subject or stage of fellowship in determining their career support needs. This was further explored during the interviews and workshop.

#### 5.1.1 Influence of previous experience

The interviews and workshops confirmed that the type, as opposed to duration, of previous career path experience (i.e. prior to applying for a fellowship) was one of the most important factors in determining career support needs. It was clear that fellows who had previous experience of leadership or had a network of advisers required less support and also found the transition to independent researcher less challenging.

*I have led small teams before, which has been invaluable in setting up my current group of researchers. I have a group of former colleagues and peers that I use for support. They include some senior people from my previous institution – they are just good at giving advice and I trust them.*

Fellows who had not had this type of experience described how support and better preparation could have helped them to establish their own research teams and reputation:

*Since starting my CDA I have had to learn quickly how to run a lab and build and manage a small research team, but have received very little training - I think ideally I need both more experience and training to feel better prepared.*

*I am managing a group of 4 people plus myself. I am on top of most things, but am aware that I could be doing a better job. I haven't been told how to manage all of this, just getting on with it. My work-life balance is very unbalanced.*

The local environment was identified as another important factor that influences career development support needs. This appeared to be more localised than a fellow’s institution or even department, as these comments show:

*She [another CDA fellow] is on the floor above me and seems to be told about training and has other support that the people on my floor don’t know about.*

*You can’t characterise things by institution, or probably even department. We are part of an institute, a department, a research centre and our research group. The information and support we get through all of these is different. You tend to follow and learn from other individuals you think are successful.*

### 5.1.2 Attitudes towards career development support

Findings from the e-survey, interviews and workshop identified 3 attributes that affect attitudes towards and therefore uptake of career development support. These are outlined in fig. 5.1.

Fig. 5.1 Attributes that affect attitudes to career development support

Attribute	Least Likely to use career development support	Most Likely to use career development support
<b>Individual motivation and aims</b>	<ul style="list-style-type: none"> <li>• Continuation of research is main aim</li> </ul>	<ul style="list-style-type: none"> <li>• Career path as an independent researcher clearly identified</li> </ul>
<b>Approach to career development support</b>	<ul style="list-style-type: none"> <li>• Reactive</li> <li>• Career development support seen as ‘additional’ to progressing own research</li> <li>• Advice and support sought only within own department</li> </ul>	<ul style="list-style-type: none"> <li>• Proactive and seeks a range of advice</li> <li>• Career development support seen as an integral part of development</li> <li>• Advice sought from a range of advisers / mentors / peers within and external to institution</li> </ul>
<b>Understanding of mentoring</b>	<ul style="list-style-type: none"> <li>• Only internal or part of working environment</li> <li>• Predominantly ‘hard’ skills – research methods etc</li> <li>• Speaking to colleagues is classified as receiving mentoring</li> <li>• No idea how to find an external mentor or get support for ‘soft’ skills</li> </ul>	<ul style="list-style-type: none"> <li>• Extensive network of external and internal advisers</li> <li>• ‘Soft’ and ‘hard’ topics – research and career progression</li> <li>• Appreciates the value of being mentored and is a mentor</li> </ul>

Fellows who were most likely to use career development support were agreed on a number of issues:

- They value informal advice from mentors (including peers) more than 'standard' training courses
- They appreciate career development support that is tailored, and is provided by mentors / professional bodies that they respect and have relevant experience
- They would welcome greater intervention by MRC

## **5.2 Effectiveness and accessibility of career development support**

As described above in section 4.5 fellows' e-survey responses indicated that they believed the least successful aspects of career development support or those which had the least benefit were training courses that were too general and focused less on best practice or development and more on compliance and process.

The interviews and the workshop confirmed and expanded upon these findings. Fellows said that whilst their universities provided a range of courses in important topics such as grant finding, managing people and recruiting staff and students, these were usually about procedures. Fellows said they actually need courses that are more strategic in nature and focus on maximising potential opportunities.

*The interviewing course was all about how not to get sued and be impartial. Whilst this is necessary, people in our situation need something more constructive, about how to identify and appoint the people who will make the most effective research team.*

*With managing people, I learnt not to shut the door if I am alone with a student, but what I need is constructive advice about how to get the best out of people. How to deal with egos, all those sorts of things. It is important that the training is constructive and about improvement.*

More-widely networked fellows use their university-based peers and superiors to advise on the operational aspects of research, (e.g. those specific to the university regarding recruitment, purchasing, procurement etc) and as such, they feel that their institutions in the main assist them effectively with these issues. That said, they were agreed that support in the developmental aspects of research management, especially within a biomedical environment, is not available.

*The CDA award is all about growing as a research leader. We need support that is different from the standard offering and which gives us an insight about what can be achieved and how to achieve it.*

## **5.3 Communications**

Most fellows said they found it relatively easy to get information about the training that was available from their institutions. Other than formal notification from their universities, they tended to find out about courses from their peer groups, extended professional networks or mentors.

Three main issues about communications were raised in interviews and workshops. The first of these was expectations in relation to what a CDA fellow is expected to achieve and therefore prioritise.

*It depends on who you speak to at MRC. Is success getting published in Nature or building a research team? What should I prioritise?*

*They give us a lot of money but I don't think we know what the main priority should be. If you know what you should be achieving then you would choose the career support to best fit that.*

The second issue, but related to the above, is communication about support that is available, both internally and externally. MRC was deemed to have been less proactive than some other funders in this respect. Communication and support in the initial stages of a fellowship was highlighted as particularly important here.

*I can contrast the 'hands-off' approach of the MRC upon award, with a colleague having a fellowship from the BBSRC. He was effectively managed throughout his first 6 – 12 months to ensure he had effective dialogue with his mentor; had issues sorted out with his institution; and had all support mechanisms brought to his attention and in some cases brokered.*

In terms of communications, the MRC was recognised to be an important facilitator in encouraging fellows to adopt a proactive approach to career development and in providing them with opportunities to learn best practice together and share experiences with each other.

*This is the one area where the MRC could have got all the CDAs together (before starting their award) and potentially used their own well-established mentoring network and assigned 'external' mentors that have 'been there and done that' to assist new CDAs in this crucial area throughout their fellowship.*

*If there had been an 'event' at the start of the CDA for each cohort then would assist CDAs not having the confidence or knowledge to make the career change that the fellowship expects.*

*I have found it particularly rewarding to exchange experiences with other fellows about a whole range of issues (e.g. group leadership, funding), and this could be implemented more formally, for instance through a course.*

Thirdly, fellows highlighted the importance of universities understanding fully the career development aspects of the fellowship in order to provide fellows with optimised support and to help them to achieve the transition to independent researcher as smoothly as possible. It was suggested that a fellow's value to their institution is not just financial but that the status of the fellowship award and the quality of the person should also be fully recognised and supported, in order to get full benefit.

*We are at greatest value to the university when the CDA is awarded. Our actual value immediately starts decreasing over 5 years as the money is spent. It would be better if they fully recognised the extent of the investment in us and provided proportionate support to help us become established.*

*It would be very helpful if the universities realised that we are more than post-docs and gave us appropriate recognition. Greater local recognition would help our reputations outside the university.*

## **5.4 Summary**

It is evident that the overriding factors which govern the career development support needs of CDA fellows are their previous experience before embarking on the fellowship and their local working environment. This embraces their previous career path, the extent of their peer network to provide advice and support and their confidence and independence in actively seeking advice from their research peers in their own institution and a wider network of professional contacts.

The majority of fellows who had engaged in career development support at their institution had found it useful to some extent and indicated that these schemes were readily accessible to them. However a minority of fellows said they were not aware of their institutions offering any relevant training. The courses on offer ranged from research management, to grant writing to people management. Fellows said there is a need for such offerings to be tailored (in relevant subjects) to the strategic needs of a developing independent researcher.

Other than formal notification from their universities, fellows tended to find out about courses from their peer groups, extended professional networks or mentors.

Whilst improved, appropriate, timely and meaningful communications between parties can always be recommended, this message particularly relates to communications between the MRC, universities and fellows before and during the important first stages of a fellowship. Ensuring universities fully understand and support the aims of the CDA scheme is thought to help ensure fellows achieve recognition as independent researchers. It is also thought that it could help to make certain that their support needs are fully understood and they have access to appropriate internal support schemes.

## 6 Mentoring experiences

This section addresses the following questions:

- **What do CDA fellows understand by mentoring? Do CDA fellows want to be mentored?**
- **How do fellows identify their mentors? Where do those mentors come from?**
- **What interactions do fellows have with their mentors?**
- **What are the benefits and impacts of any mentoring?**

### 6.1 Attitudes to mentoring

The e-survey asked fellows what they understood the term mentoring to mean. Standard dictionary definitions were not common and fellows offered their own understanding. From their responses, a mentor is someone who:

- Provides advice, support and guidance on research development and career development
- Is more experienced than the fellow and likely to be from the same or related research area
- Encourages the fellow to have his/her research (and in fewer cases career development) on track
- Is accessible and approachable to the fellow when seeking advice on professional issues
- Has the fellow's respect, having qualified experience (not solely scientific excellence) in the areas and topics where the fellow is seeking advice and guidance.

A minority of fellows made a clear distinction between a mentoring role and research supervision. One fellow said that the term 'mentoring' was condescending, but from subsequent responses it was clear that they had benefited from the support, advice and guidance given by their mentors. Typical definitions included:

*An experienced PI sharing his knowledge. Helping with advice concerning funding, strategic research planning, people management and university policies.*

*Being an established senior scientist and providing advice to a scientist at an early stage of his/her career, with the will to help him/her develop his lab and career. In the previous part of the survey, I mentioned mentoring referring to the support I receive from my previous postdoc supervisor. However, I do not think that a previous supervisor can be regarded as a mentor.*

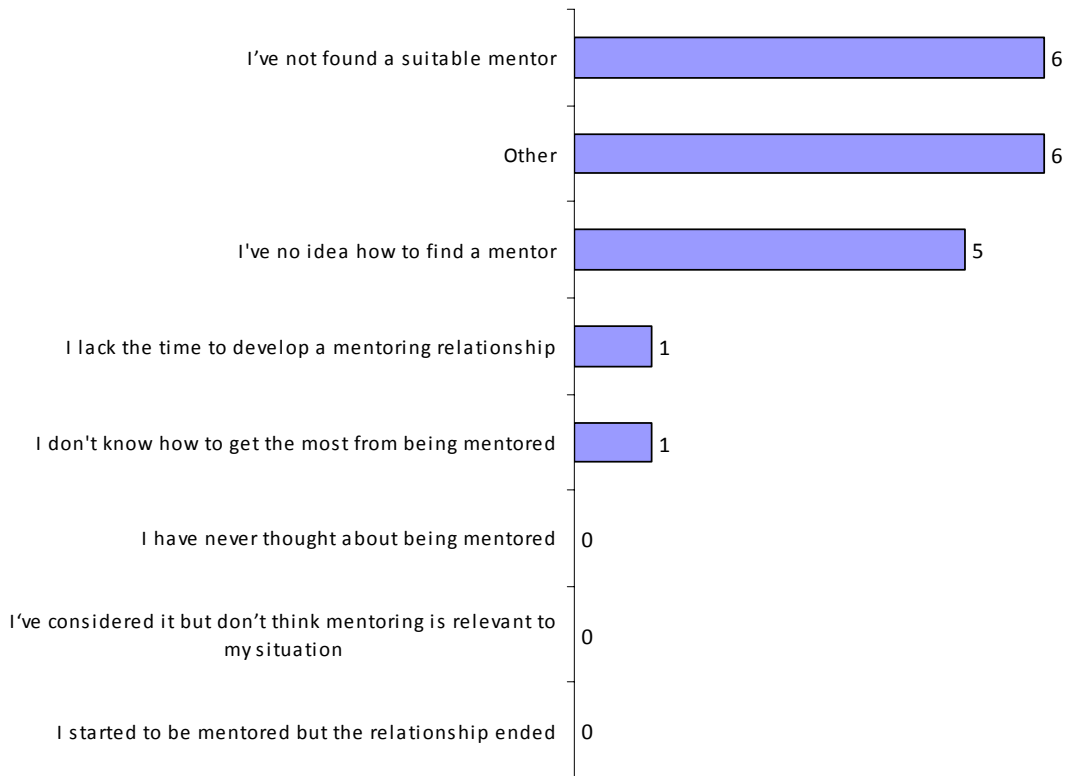
*To me is the way to receive personal and scientific advise in how to deal with the problems of running a research lab, focus your research, generate output in an efficient way, and in general receive counseling from others experience.*

35 fellows (78% of 45 respondents) indicated that they had received mentoring during their CDA fellowship, with 9 (20%) saying that they had not been mentored and 1 (2%) answering don't know. The fellow who answered don't know also said they had 2 to 3 informal mentors and indicated these were *the person I'm most likely to approach with questions*. A low level of participation in other forms of career development support was also evident for the fellows

who said they had not been mentored, including one respondent who was less than one year into their fellowship.

Fellows who said they had received no mentoring or only limited mentoring during their fellowship were asked why. Their answers are shown in the graph below.

**Fig. 6.1 Reasons for not having received mentoring (n=12)**



Not having found a suitable mentor (50% of respondents to this question) and having no idea how to find a mentor (42%) were the most common explanations. 28% of NIRGs who answered this question said they had not found a suitable mentor. The 'other' explanations from CDA fellows suggest that they believe mentors come from within their own institutions or departments. These explanations were: having been assigned a mentor who was not useful; not being offered one despite having asked; people who were asked being too busy; no mentorship culture within their institution; no one suitable in the department; having had ad-hoc informal chats with colleagues but nothing more.

The e-survey indicated that fellows want to be mentored, which was confirmed by the interviews and workshops. In nearly all cases a fellow's amount, appreciation and benefit of mentoring correlated to a positive attitude to all forms of career development support. The interviews and workshop confirmed this.

*It is really important to have people that you respect to ask questions and seek advice about what you are supposed to be doing or could do better.*

*We all need support and advice from people at different levels of seniority. Your peers help because they make some of the same mistakes and more experienced people, if they are any good, help you to understand how you should be functioning.*



*I value my range of mentors, both at my institution and external gained through my experienced career path and also at industry collaborators.*

## **6.2 Identification and selection of mentors**

Fellows were asked what defines or characterises the person they said was their main mentor. The most common characteristics were seniority, respect, proximity and being the sponsor for the CDA fellowship.

*He supported my initial application, and is the most senior mentor.*

*They are local, unlike some of my informal mentors.*

*I highly admire her exceptional personal and scientific qualities.*

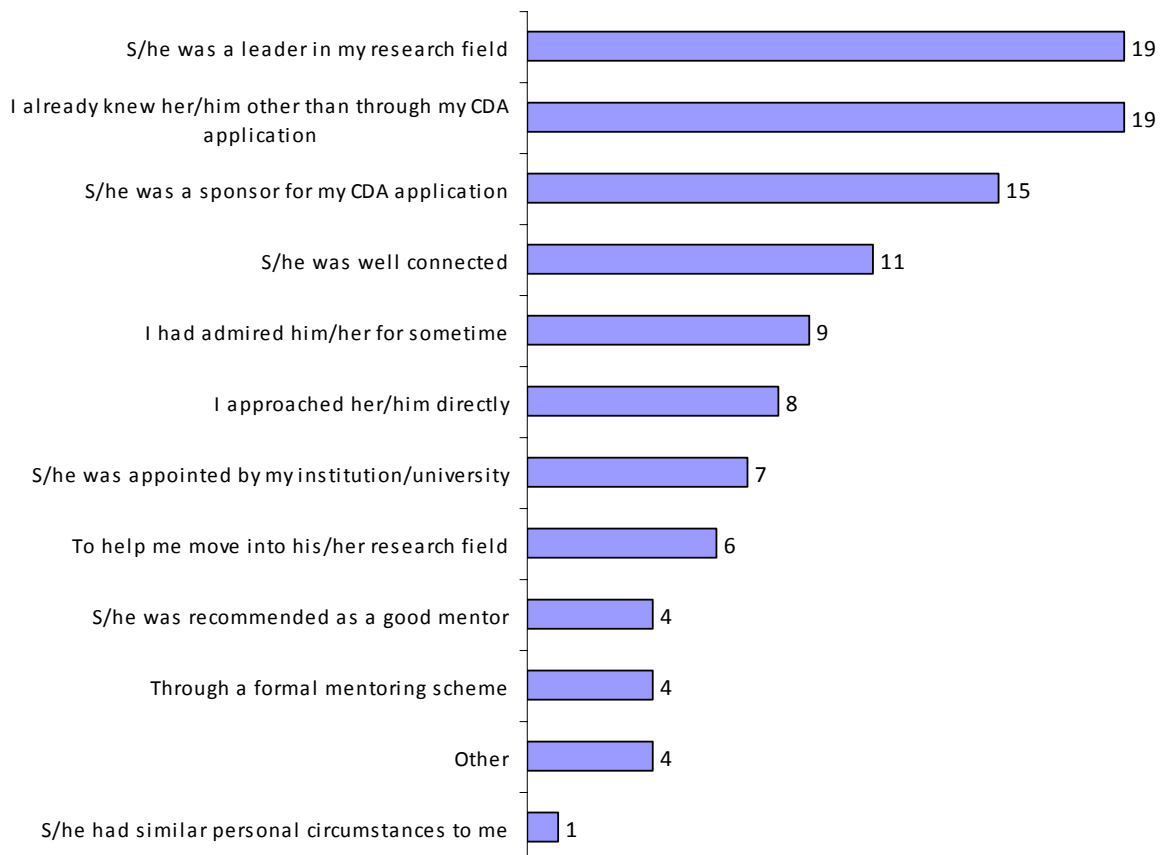
*He is my formal mentor within the department*

*They were my CDA sponsor and provide advice when needed. They have an open-door approach to management.*

*One of the best in my field, strong experience in all aspects of research career development.*

The e-survey also asked fellows how they identified their main mentor. As fig. 6.2 shows, the most common responses were 19 (50% of respondents to this question) who said they chose a research leader in their own field, 19 (50%) who said they already knew their main mentor other than through their CDA application and 15 (39%) whose main mentor was a sponsor for their CDA application.

**Fig. 6.2 Criteria used to select main mentor (n=38)**



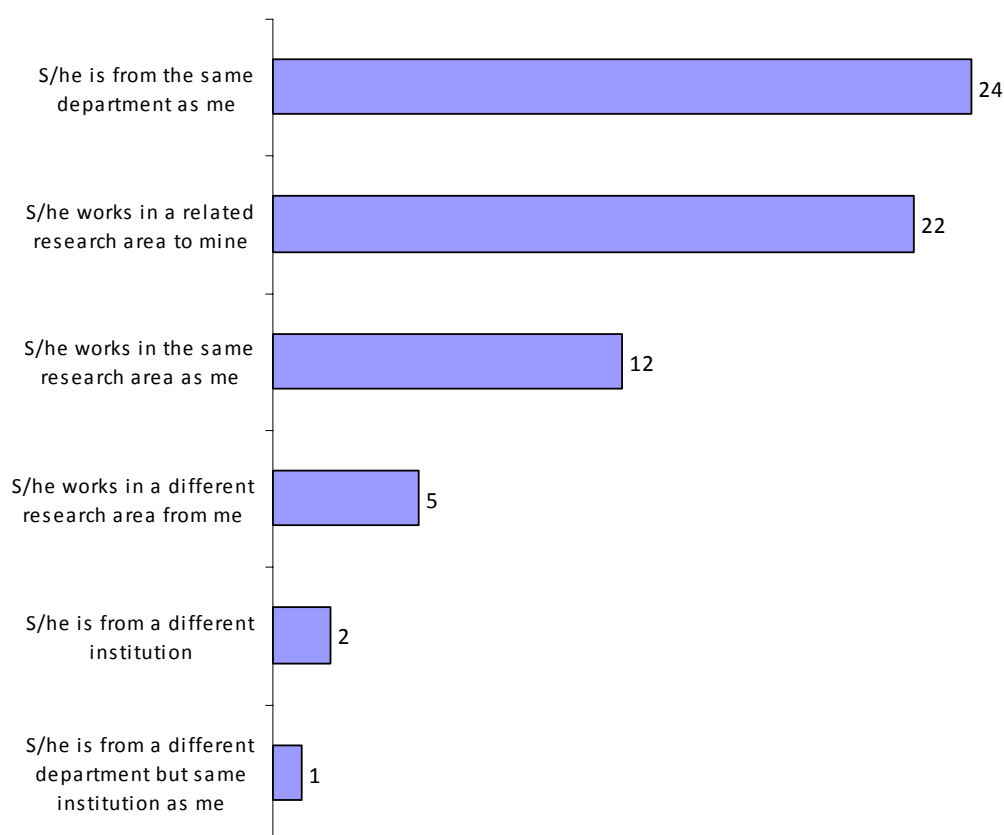
8 (21%) fellows indicated they found their main mentor through a formal mentoring scheme. All of these schemes were run by the fellow's own department, institute or university, including optional schemes.

*The School has a formal mentoring scheme but being part of it is optional. I chose to have a mentor because I thought it would help me going through the very important and demanding stretch of my career more smoothly. It actually does help.*

*The University has a formal mentoring scheme for all staff and I have been enrolled on this*

Fellows were also asked about their main mentor's research field and institution. 38 fellows answered this question and most (24; 63%) had main mentors who work within their own departments, with 22 (58%) having main mentors who work in a related research area and 12 (32%) having main mentors who work in their own research area.

**Fig. 6.3 Main mentor's research area and institution (n=38)**



During interviews and the workshop, fellows reiterated the point that mentors were often someone who had supported their CDA application, or was part of their department. Most of these main mentors supported fellows by taking an interest in their research and careers.

It appears that NIRGS may be more outward looking than CDAs. 26% of NIRGs said their main mentor was from a different institution, which compares to 5% (2) for CDA fellows.

### 6.3 Mentoring processes

28 (62% of respondents to this question) fellows said they had 1 formal mentor which compares with 36% of NIRGs. 22 (56%) fellows have 2 to 3 informal mentors.

E-survey responses showed that fellows have a variety of different contacts with their mentors. 'Face-to-face meetings' were the most frequent form of contact used by 38 fellows (100% who received mentoring), followed by email, used by 32 fellows (84%). 19 fellows (50%) said they had face-to-face interaction with their main mentor 10 times or more per year. 22 (58%) had email contact 10 times or more per year.

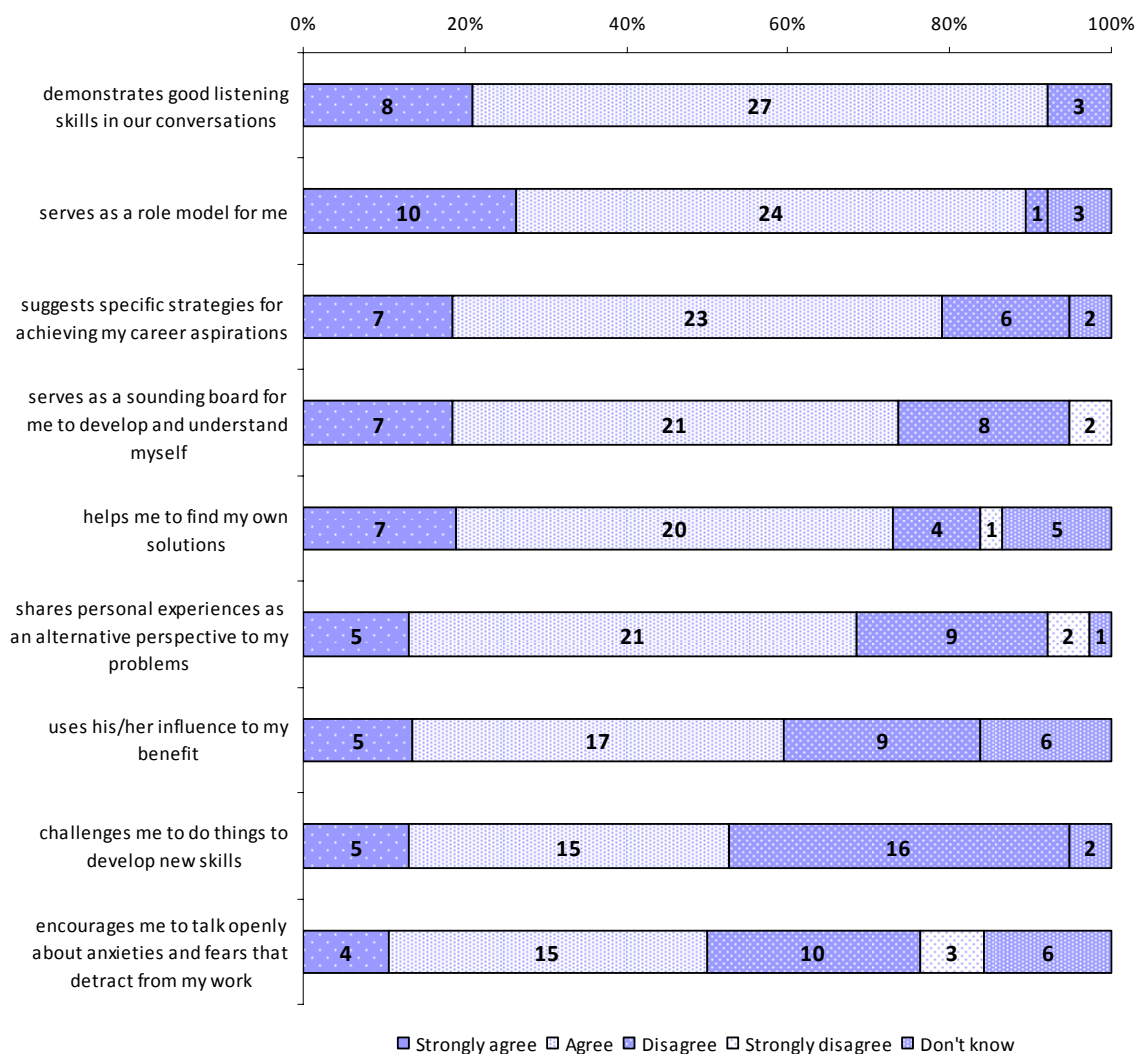
When asked about the topics or issues that they discussed with their main mentors, 31 fellows (82% of responses to this question) selected 'academic career progression and development', followed by 'research funding' (30; 79%) and 'research ideas and methodology' (29; 76%). The 'other' topic was an annual performance review.

Fig. 6.4 Ideas and topics discussed with main mentor (n = 38)



To help define the role of a mentor, the e-survey asked fellows about the extent to which they agreed or disagreed with statements about the role played by their main mentor. 38 fellows answered this question and agreed most strongly that the main mentor 'demonstrates good listening skills in our conversations' (35; 92% agree or strongly agree), 'serves as a role model' (34; 90%) and 'suggest specific strategies for achieving career aspirations' (30; 79%).

**Fig. 6.5 Role played by main mentor (n=38)**



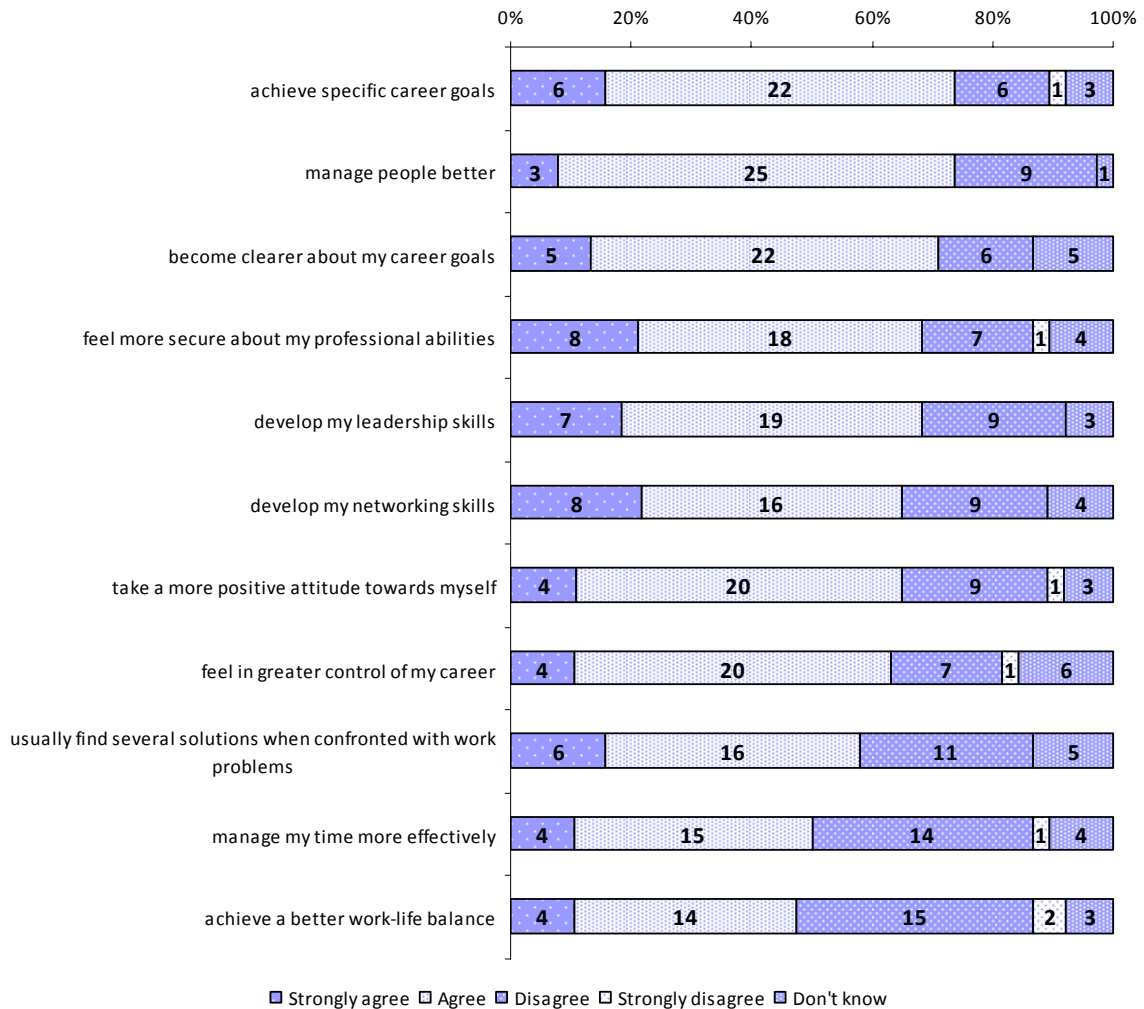
Interview and workshop findings indicated that fellows did not compartmentalise mentoring in terms of subjects and topics discussed although they had a tendency to use the specific expertise of different mentors for particular advice (e.g. using different mentors for funding applications, research methods; industry collaborations and people management). Most fellows also identified that mentoring was distinct from giving advice on daily operational issues (e.g. procurement, purchasing etc.) which was deemed to be the responsibility of the host university. The fellows who were least clear about the role of a mentor were in the main those who mentoring experiences were restricted to departmental or institutional schemes.

NIRGs were more likely to agree that that their main mentor helps them to find their own solutions and challenges them to do things to develop new skills.

## 6.4 Benefits and impacts of mentoring

To determine the impact of mentoring, fellows were asked to what extent they agreed or disagreed with statements about how all the mentoring they had received during their CDA fellowship had helped them to benefit in eleven different areas. Responses from 38 fellows showed that there had been a range of impacts. The most common of these were 'achieving specific career goals' (28 fellows; 74% agreed or strongly agreed), 'managing people better' (28; 74%) and 'becoming clearer about career goals' (27; 71%).

Fig. 6.6 Benefits of mentoring (n=38)



24% of NIRGs disagreed that mentoring helps them to manage people better, which compares with 10% of CDA fellows. It should be noted that there may be significant variation in how individual CDAs and NIRGs describe mentoring, which reflects the wide variety of literature definitions and range of views within the academic world of what is a mentor.

## **6.5 Summary**

35 fellows said they have received mentoring during their CDA fellowship, with 9 (20%) saying that they had not been mentored. Not having found a suitable mentor (50%) and having no idea how to find a mentor (42%) were the most common explanations for not having been mentored.

Fellows want to be mentored. The most common characteristics of the individuals that are regarded to be main mentors are seniority, respect, proximity and being the sponsor for the CDA fellowship. Fellows identified their main mentors by choosing a research leader in their own field or already knowing their main mentor, including as a sponsor for their CDA application. 8 fellows said they found their main mentor through a formal mentoring scheme. All of these schemes were run by their department, institute or university, and included optional schemes. Most fellows (63%) have main mentors who work within their own departments, with 58% having main mentors who work in a related research area and 32% having main mentors who work in their own research area.

A low level of participation in other forms of career development support was also evident for the fellows who said they had not been mentored.

Fellows have had a variety of different contacts with their mentors. Face-to-face meetings were the most frequent form of contact followed by email. The main topics or issues discussed with mentors were academic career progression and development, followed by research funding and research ideas and methodology. Fellows' main mentors demonstrated good listening skills, served as a role model and suggested specific strategies for achieving career aspirations.

Mentoring has delivered a range of benefits for fellows. The most common of these are 'achieving specific career goals', 'managing people better' and 'becoming clearer about career goals'.

## 7 Possible new interventions

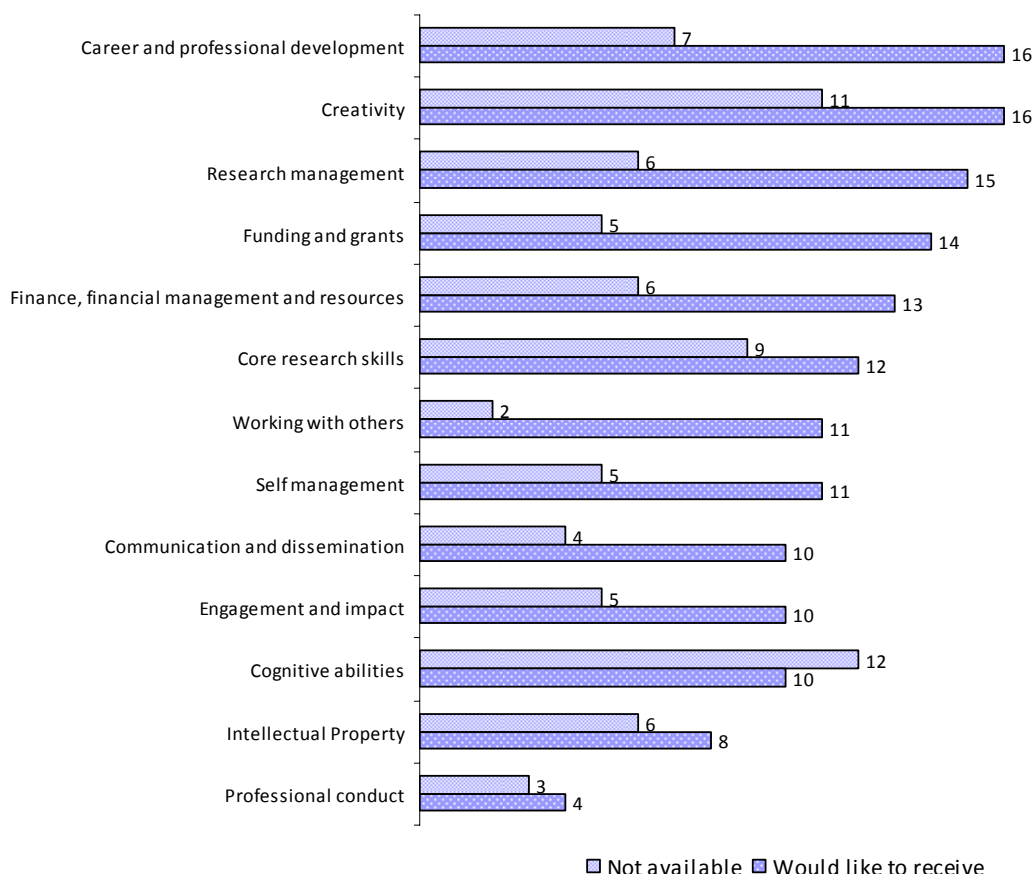
This section addresses the following questions:

- **What new interventions or schemes are needed? Who might deliver these? What would be their characteristics?**
- **What would they like a potential mentoring scheme to help them to do or be? Does this match the Academy mentoring scheme's aims and impacts?**

### 7.1 Subjects

In the e-survey, fellows identified the subjects in which they would like to receive career development support. As fig. 7.1 shows, the top three most common subjects where fellows said they would like to receive support were: 'career and professional development' selected by 16 fellows (39% of respondents to this question), 'creativity' selected by 16 (39%) and 'research management' selected by 15 (37%). Of these, creativity was deemed to be one of the subjects where support was least likely to be available.

**Fig. 7.1 Subjects in which fellows would like to receive career development support (n=41)**



Explanations for these answers indicated that fellows believe that further support in these subjects would benefit researchers throughout their careers. They also said that any offering needs to be tailored to the needs of those who are aiming to become independent researchers.

Findings from the interviews and workshops agreed with the above answers. They also suggested that creativity and creative processes are not typically shared within the research environment, which could be why this subject was deemed important.

*We all think in different way, but I would like to know how others approach their research to see if there is anything I could adapt or add to what I am doing.*

*Again I think this is about being the best you possibly you can be, being creative, recruiting the right people are important things for research leaders and you want to develop and improve in all these areas.*

The interviews and workshop added 'managing people' to the list of important subjects. They repeated the importance of ensuring that any support was accessible and specific to those making the transition to independent PI. It was suggested that universities could not be expected to deliver such specific or tailored training and that some sort of centralised support would be most likely be more useful. Fellows suggested that this could be offered by professional bodies that have knowledge of specific subjects; are credible to fellows and would enable a network to be created amongst fellows.

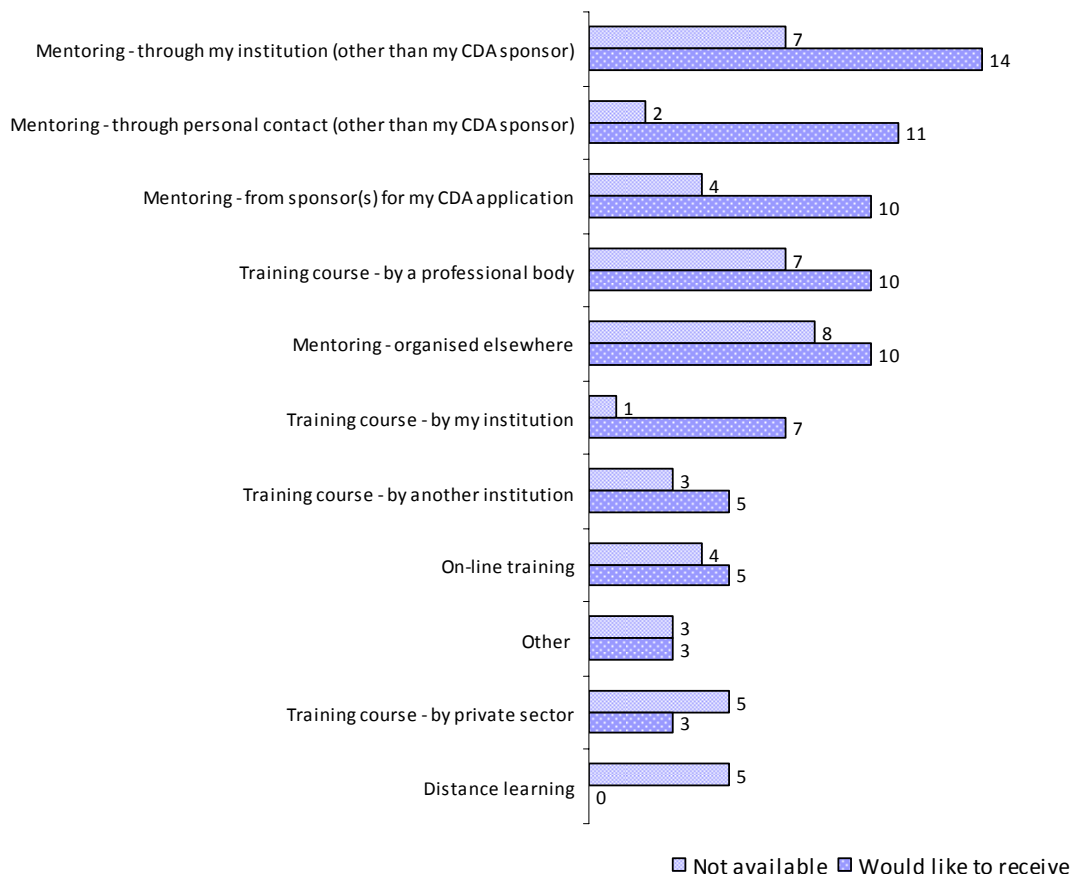
*A good example of this would be EMBO training courses which are an excellent preparation for research leaders. Since MRC and Wellcome intermediate fellowships are basically identical in many ways perhaps a joint initiative might be a good idea?*

## **7.2 Types of interventions**

Fellows also selected the types of career development support that they would like to receive. Mentoring from a number of sources and training from professional bodies were the most common selections as shown in fig 7.2 below.



**Fig. 7.2 Types of career development support that fellows would like to receive (n=41)**



Explanations highlighted fellows’ previously expressed needs for support that has been tailored for those who are making the transition to independent researcher and addresses the strategic aspects of funding and recruiting and managing teams.

Interviews and the workshop confirmed the survey findings that support is critical in the early stages of a fellowship, which was identified to be crucial in determining success. Structured communications prior to starting could help to identify those fellows whose support needs may be greater, such as those whose previous experiences have provided them with fewer opportunities to establish a research identity, leadership skills or effective support networks. Encouraging fellows to take a proactive approach to their career development from the outset of their fellowship could help them to make best use of the available support, including cross-sectoral opportunities.

Fellows said they valued learning from peers that have *‘already been there and done it’* and have set up their own research group. The MRC was commended for the Annual Fellows Symposium as an event where fellows could not only network amongst themselves and discuss issues but could learn from more-established fellows. The breakout workshops on *‘partnering’* and *‘funding’* were highlighted as particularly relevant and successful. It was suggested that similar sessions on developing a research team would be a useful addition.

*The funding session at the symposium is exactly the type of thing we need. A series of these throughout the year would be really useful.*

*The Symposium is useful for networking and meeting other fellows. It does only happen once a year and there could be more networking events.*

Fellows said that training in developing a research team and an independent reputation could be integrated into a programme of support that is tailored specifically to the needs of the CDA scheme and includes networking opportunities as well as addressing specific training and development needs. Such a programme could encompass:

- Objectives and expectations clearly and consistently articulated and shared by fellows, the MRC and the host institutions
- An introductory workshop and support in the initial stages of the fellowship that builds on agreed expectations with practical training and development activities focused on developing from post-doctoral researcher to independent PI, addressing issues such as work/life balance as well as developing a reputation and team
- Regular workshops delivered by relevant professionals using the same approach as the funding workshop at the MRC Fellows symposium, in subjects including research management, networking and industrial collaboration
- Independent mentoring via a scheme specifically designed for CDA fellows
- Opportunities to receive regular feedback from MRC on personal and professional progress
- Opportunities to interact regularly with other CDA fellows
- Case studies and examples of achievements and career progression made by former CDA fellows

Support needs change as fellows progress through the fellowship and could be targeted at pre-award (identifying career development need), the initial stages (induction and shared expectations) and throughout the five years (specific assistance in leadership, developing a team, establishing a reputation etc.).

*Something formal early on in the fellowship would be really useful. I think it would help us to think strategically about our development and make sure we ask the right questions of our universities.*

*When you start, it is really down to what your colleagues tell you. Having an independent source of information at that stage would be really useful in making sure you are setting out on the right track.*

Fellows suggested that the MRC could recommend professional offerings in career development support that were appropriate and relevant. They said that time constraints and credibility could inform those recommendations, i.e. had previous CDA Fellows attended and would they endorse the offering, was it feasible within the time available etc.

*Letting us know what has worked well for other fellows would be extremely valuable. It would mean you could choose credible and relevant courses and not waste any time on those that are useless.*

*Whilst we all have specific needs, it would be helpful to know which courses to think about going on and which to avoid.*

### **7.3 Further mentoring**

Explanations for wanting improved mentoring indicated that fellows believed a breadth of mentoring advice was important, particularly mentoring by those who are former CDA fellows or have undergone similar career paths. Any new intervention should complement existing mentoring schemes run by universities, but should be sufficiently flexible to recognise that not all universities have formal mentoring schemes.

During the interviews and workshop, fellows described the characteristics of an ideal mentor as someone who:

- Has equivalent or relevant experience and is not too far removed from today's research environment ( maybe 5 to 10 years ahead of the fellow in terms of their career)
- Is respected in terms of what they have achieved, both in terms of their research outputs and being a respected leader
- Is available or accessible to mentees, wants to be a mentor and ideally is trained in mentoring
- Possesses the ability to have learnt from their own experience and can share their learning with others
- Reflective, in that they are able to understand mentees' experiences and situations and can reflect their own experiences on those situations without imposing their ideas on mentees
- Is a sounding board, but is not conflicted by line management or peer review responsibilities
- Is trusted by mentees and respects the confidentiality of the relationship
- Has no conflict of interest i.e. is independent from supervisory responsibilities or research objectives that conflict with their ability to give objective support or advice

Fellows also described the characteristics of an appropriate mentoring scheme. These were:

- Mutually agreed expectations and ground rules for mentors and mentees
- Neutral territory, in that there are no conflicts of interest between mentors and mentees
- Flexibility, in that existing mentors can be introduced into a scheme and mentees can opt-out
- An effective matching process to ensure compatibility and trust between mentors and mentees

### **7.4 Summary**

Most universities provide certain career development support courses, but the majority of fellows would benefit from a degree of tailoring and enhancement to suit the needs of a CDA fellowship, in particular strategic planning and development for the transition to research leader. The pro-active assistance of the MRC prior to, and during the initial stages of a CDA fellowship would help fellows to ensure they are adopting best practice and are achieving the aims of the fellowship scheme when developing their research groups and reputations.

CDA fellows would like to receive the advice and mentoring that is appropriate to them at the different stages in their fellowship. Mentoring should cover all aspects of career development support that assist the transition between post-doc and independent researcher.

Fellows highlighted four main areas where interventions could be introduced or strengthened. In order of importance these were:

- Help to find mentors, particularly those who have undergone similar experiences to fellows
- Ensure institutions understand and fully support the CDA scheme, and fellows generally, especially in relation to establishing themselves as potential research leaders
- Facilitate networking and contacts with other fellows – CDAs and others – to enable sharing of experiences and ideas about career development
- MRC to provide support on specific topics (e.g. setting up a research group, IP, career management, working with industry) and tailored to biomedical researchers

Any new interventions should recognise the factors and attributes that affect fellows' uptake of and attitudes to career development support. They should also form part of an overall framework of support and not duplicate any existing initiatives or activities, including those provided by fellows' own universities or instigated by fellows themselves, such as their peer networks.

## 8 Conclusions

CDA fellows have access to career development support through their institutions and networks. Institutional support is centred on the operational aspects of research and research management, and in most cases addresses the fellows' needs for this type of support. However the picture is not uniform and some universities offer more training than others.

The transition from post-doctoral researcher to independent research leader is significant and challenging. The extent of the challenge is dependent upon previous experience and fellows from all backgrounds would benefit from enhanced support to aid this transition, including:

- Pre-award support to identify career support needs and ensure mutual understanding by fellows and their universities of the particular aims of the CDA fellowship
- An introductory/induction event for CDA fellows to encourage a proactive approach to career development and ensure the context and full range of career development opportunities is completely understood
- Ongoing training about research management and establishing a research reputation which addresses strategic matters and focuses on best practice related to the biomedical research field
- A mentoring scheme, which complements fellows' existing networks, makes use of the experiences of former CDA fellows and provides independent advice and support on the full range of career development issues

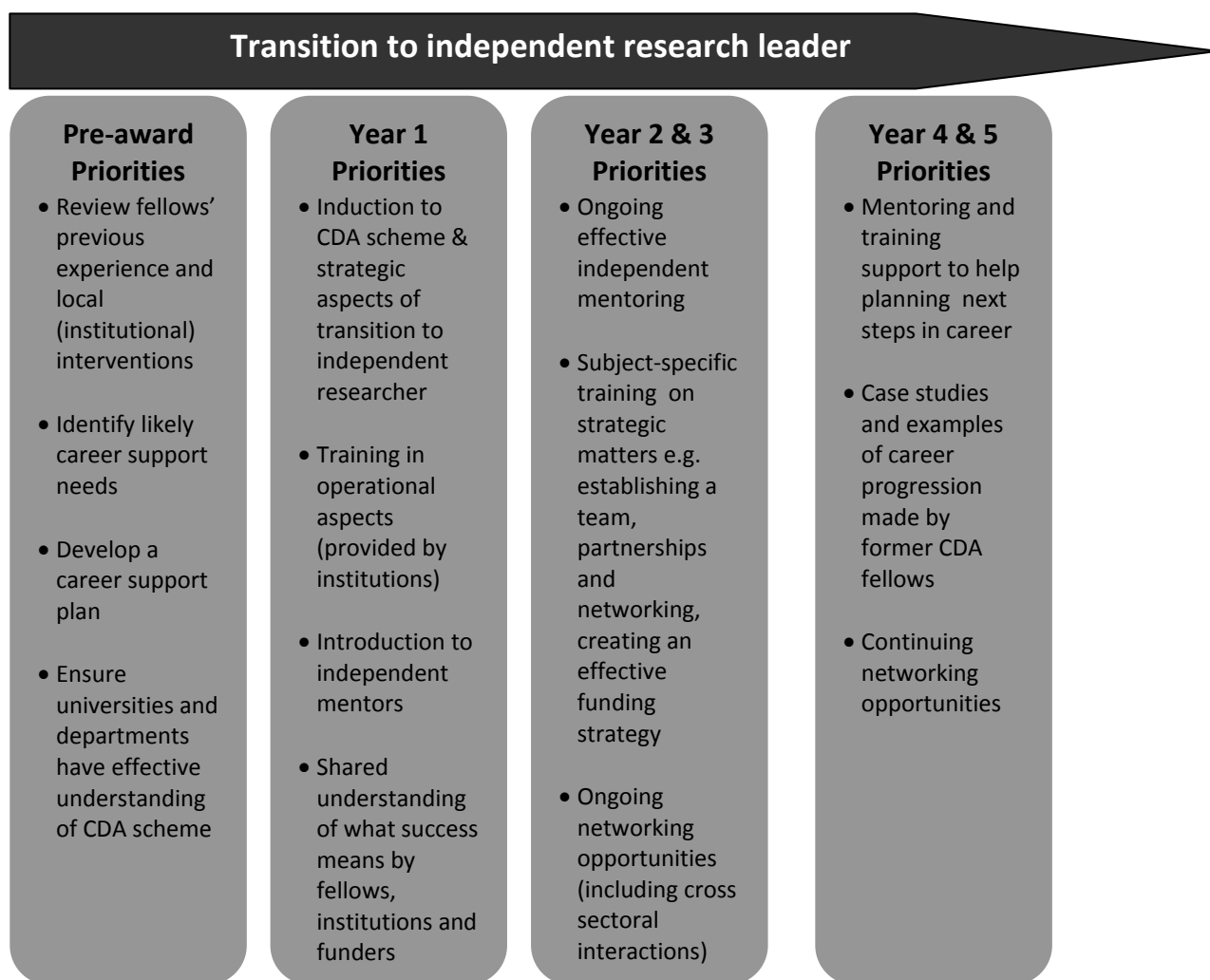
Any new interventions should form part of an overall framework of support which addresses different priorities at different stages of the fellowship. A suggested framework for support of CDA fellows is outlined in fig. 8.1 overleaf. This framework is intended to complement existing policies and guidelines for career support of researchers, such as the Research Councils and universities *Concordat to Support the Career Development of Researchers*<sup>6</sup> and the *Researcher Development Framework*<sup>7</sup> published by Vitae. As such, it, or any other new framework or interventions, should be considered in the context of existing guidance and policies.

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<sup>6</sup> <http://www.vitae.ac.uk/policy-practice/505181/Concordat-to-Support-the-Career-Development-of-Researchers.html>

<sup>7</sup> <http://www.vitae.ac.uk/researchers/428241/Researcher-Development-Framework.html>

Fig. 8.1 Suggested framework for career development support of CDA fellows



There are implications for fellows, their universities and the MRC in establishing an effective framework for career development support for CDA fellows:

- Fellows can take a proactive and broad approach to seeking career development support and recognise its importance in making the transition to research leader
- Universities can be encouraged to fully understand the aims of the CDA scheme and to recognise their role in supporting CDA fellows to become research leaders
- MRC, in partnership, with other organisations such as the AMS, can develop bespoke mentoring and support interventions addressing gaps in the priorities outlined above

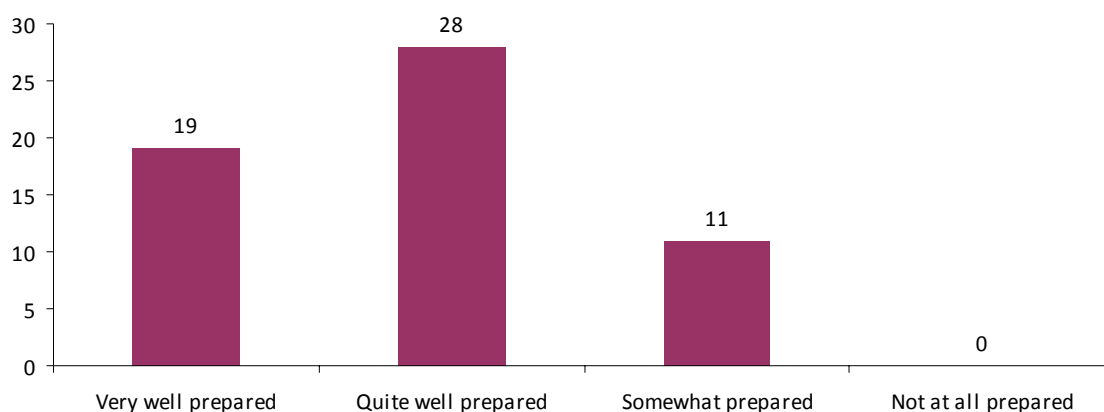
## Annex A – Summary of survey responses from NIRGs

The e-survey was sent to 69 holders of New Investigator Research Grants (NIRGs) as a control group for CDA fellows. 58 NIRGs responded representing a response rate of 84%. 28 (48%) respondents were male and 21 (36%) were female, with 9 (16%) not saying. 42 (72%) were aged 35-44, 3 (5%) were younger than 35 and the remainder did not indicate their age. 20 (35%) held the job title 'Lecturer' and 10 (17%) held the title 'Senior Lecturer'. 8 (14%) were in year 1 of their grant, 12 (21%) were in year 2, 23 (40%) were in year 3 and 15 (26%) were just finishing or had finished.

### Readiness for Research Leadership

As fig. 9.1 shows, 19 (36%) NIRGs said they were 'very well prepared' for a research leadership role in the future. Of these, 11 were in year 3 of their grant and 6 were just finishing. NIRGs who were 'quite well prepared' were evenly distributed through all stages of the grant, including just finishing or completed. Most (10) of those who were 'somewhat prepared' had not finished.

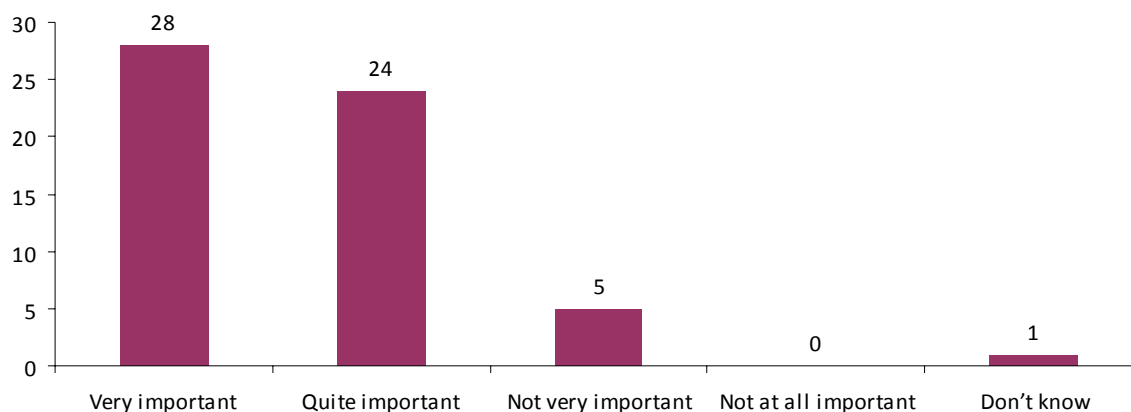
Fig. 9.1 NIRGs' readiness for research leadership (n=58)



### Importance of Career Development Support

When asked about the importance of career development support at the present stage of their grant, 28 NIRGs (48%) said it was 'very important' and 24 (41%) said it was 'quite important'. Of the 5 (9%) who said it was 'not very important', one was just finishing and the others were in the final year of their grant. See fig. 9.2 below.

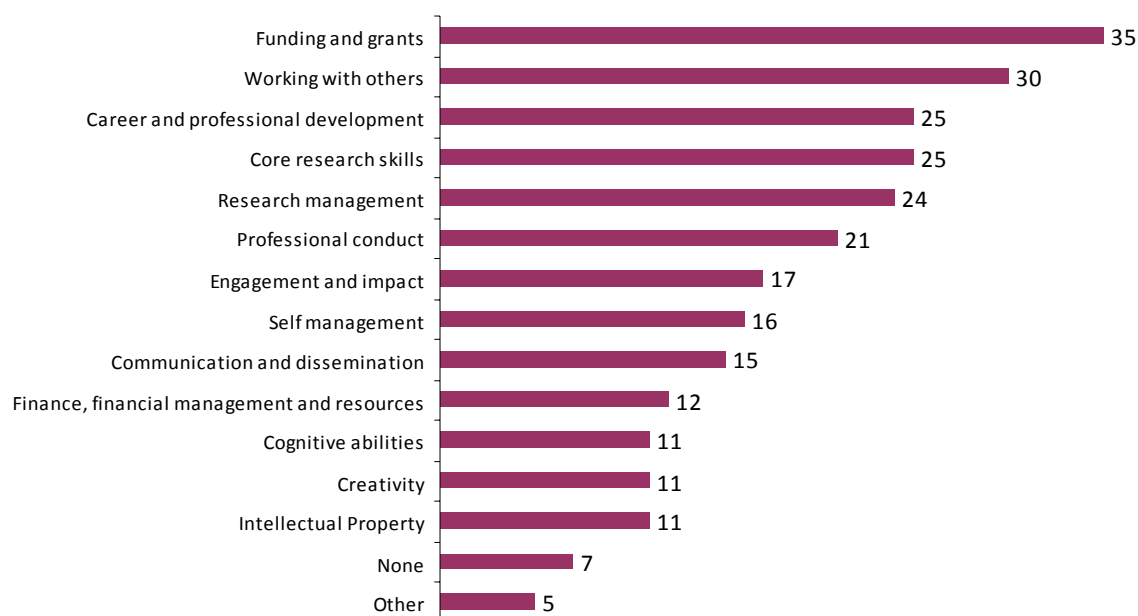
Fig. 9.2 Importance of career development support for NIRGs (n=58)



### Current use of career development support

Fig 9.3 shows that the most common subject in which career development support had been undertaken was ‘funding and grants’, selected by 35 (60%) NIRGs. 30 (52%) selected ‘working with others’ and 25 (43%) selected ‘career and professional development’ and ‘core research skills’. 7 (12%) selected ‘none’. 5 (9%) selected ‘other’ and said they had undertaken compulsory training in teaching in order to become a lecturer.

**Fig 9.3 NIRGs’ current uptake of career development support (n=58)**



The most common types of support used by NIRGs were:

Training course provided by my own institution	33 (57%)
Mentoring organised through personal contact	30 (52%)
Mentoring organised through my own institution	23 (40%)

30 (52%) NIRGs said it was ‘fairly easy’ or ‘very easy’ for them to find suitable career development support. 15 (26%) said it was ‘fairly difficult’ or ‘very difficult’ and 9 (15%) said it ‘varies’. Generally, external sources of information were less common than internal sources. 15 (26%) NIRGs selected ‘mentor’. The most common sources of support information were:

Colleagues	31 (54%)
Peer network	25 (43%)
Administrators in my department	23 (40%)

The most common criteria used by NIRGs to deciding to undertake career development support were:

I want information about specific issues	30 (52%)
I have time to undertake it	25 (43%)
I want general support regarding research career options and decisions	23 (40%)

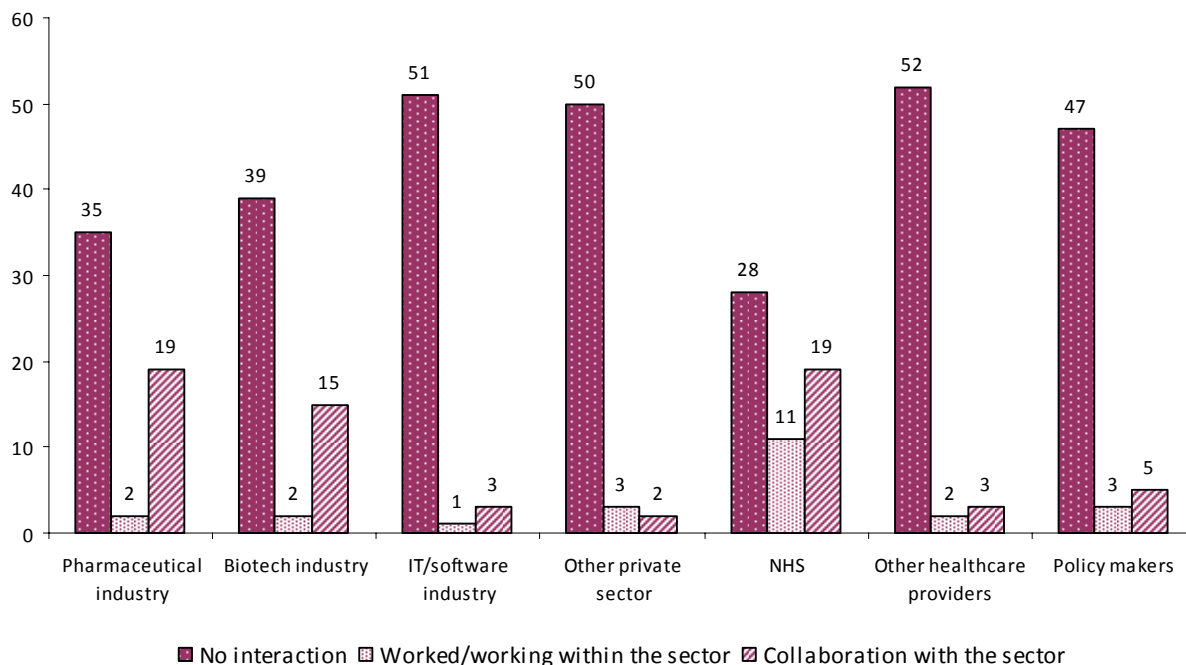
7 (12%) NIRGs had not undertaken any career development support. They indicated that lack of time and not identifying any relevant support were the main reasons for this.



## External interactions

Work or collaboration with the NHS was the most common form of interaction outside the academic sector or home institution as fig. 9.4 shows. 19 (35% of respondents) NIRGs have collaborated with the NHS and 11 (20%) have worked with that sector.

**Fig. 9.4 NIRG interactions with other sectors (n=55)**



41 NIRGs described the benefits of these interactions. The most common of these were:

Gained knowledge of working with others	20 (49%)
Access to reagents, model organisms, datasets or other resources	20 (49%)
Access to collections of biological or clinical samples	19 (46%)

11 NIRGs said they had spent 5 or more days at another academic institution during their grant, including two who had spent more than 5 days at both a UK and an overseas institution.

## Mentoring

46 (79%) NIRGs indicated that they had received mentoring since being awarded their grant, with 7 (12%) saying that they had not been mentored and 2 (4%) answering don't know. 5 of the NIRGs who said they had received no mentoring or only limited mentoring indicated that this was due to a conflict of interests between them and their assigned mentor e.g. overly similar research interests or issues. 50 NIRGs selected the criteria they used to choose or identify their main mentor. The most common of these were:

I already knew her/him	26 (52%)
S/he was a leader in my research field	23 (46%)

29 of these NIRGs said they had main mentors who work within their own departments, with 26 (52%) having main mentors who work in a related research area and 18 (36%) having main mentors who work in their own research area. 13 (26%) had main mentors from a different institution.

The topics that these NIRGs discussed most commonly with their main mentors were:

Academic career progression and development	46 (92%)
Research funding	39 (78%)
Research ideas and methodology	39 (78%)

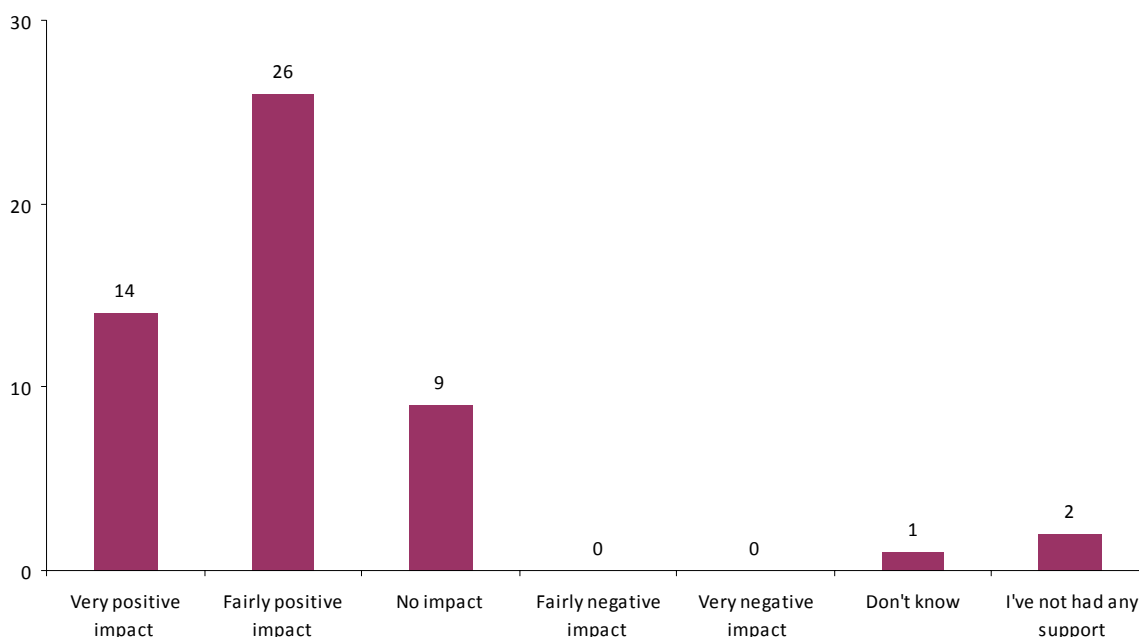
These NIRGs agreed most strongly that their main mentor ‘helps me find my own solutions’ (41; 82% agree or strongly agree), ‘serves as a role model’ (40; 80%) and ‘demonstrates good listening skills’ (40; 80%).

The most common benefits or impacts of mentoring selected by these NIRGs were ‘managing people better’ (40; 80% agree or strongly agree), ‘feeling more secure about my professional abilities’ (36; 72%) and ‘developing my leadership skills’ (35; 70%).

### Benefits of career development support

52 NIRGs rated overall impact of their career development support. 14 (27%) selected ‘very positive’ and 26 (50%) selected ‘fairly positive’. 9 (17%) said it had no impact as fig. 9.5 shows.

Fig. 9.5 Overall impact of career development support (n=52)



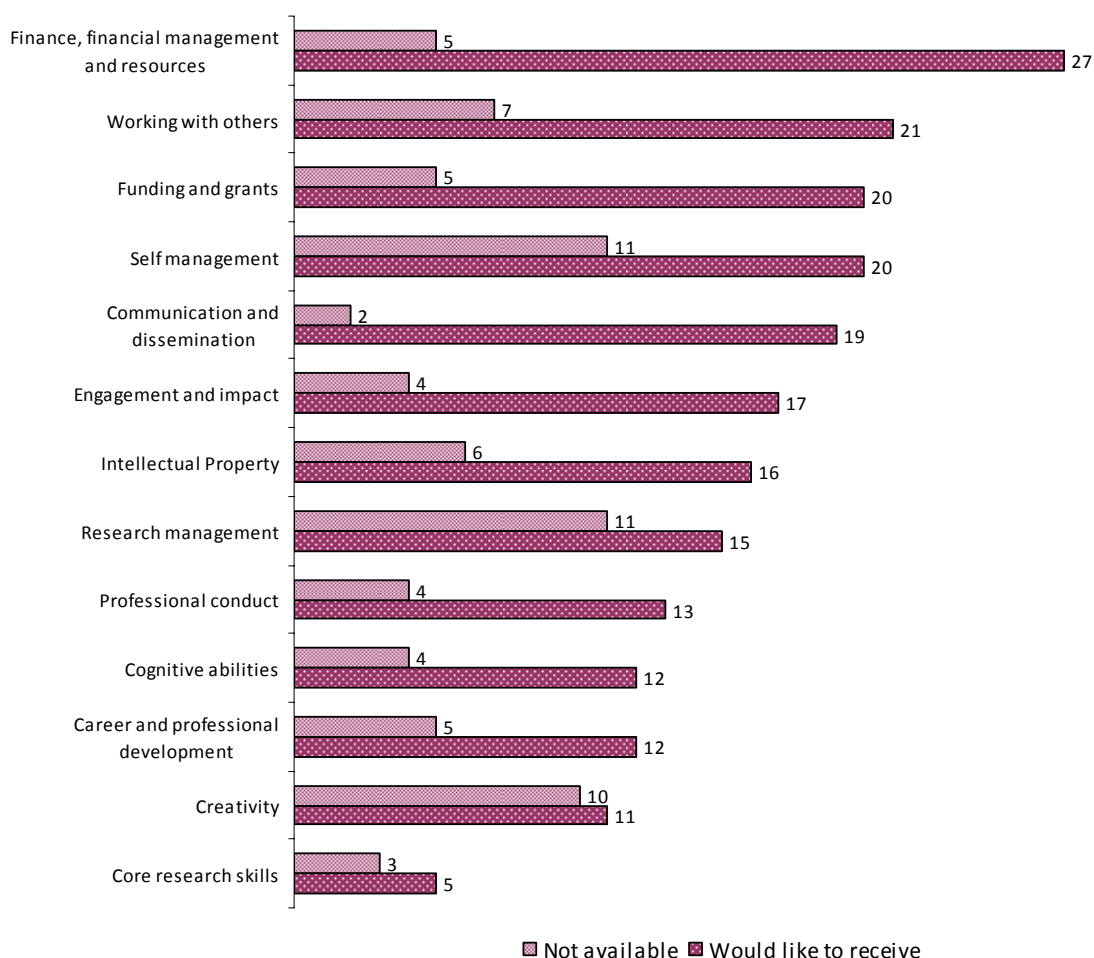
NIRGs described increased confidence as the main benefit of career development support.

### Possible new interventions

50 NIRGs selected the subjects where they would like to receive career development support as shown in fig. 9.6. The most common selections were:

Finance, financial management and resources	27 (54%)
Working with others	21 (42%)
Funding and grants	20 (40%)
Self management	20 (40%)

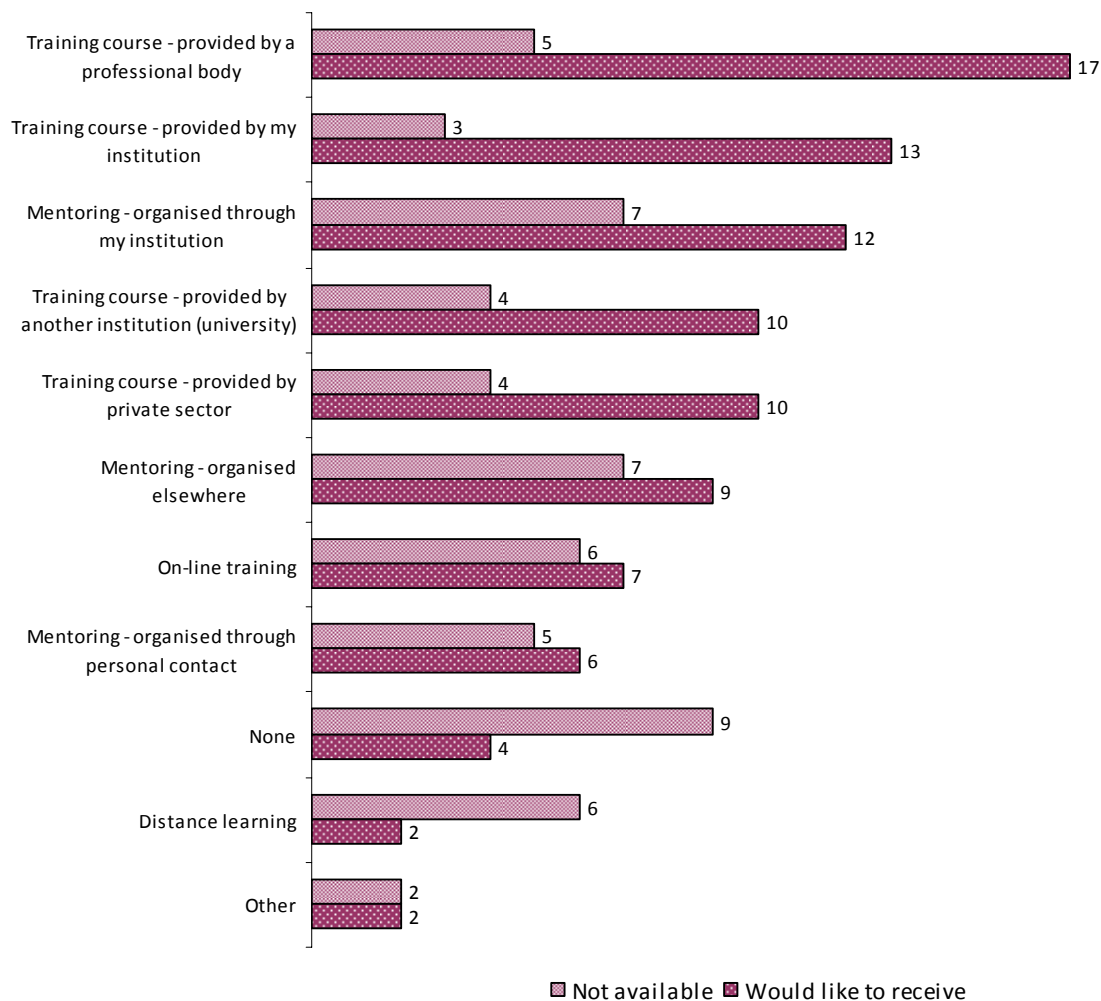
**Fig. 9.6 Subjects in which NIRGs would like to receive career development support (n=50)**



These 50 NIRGs also selected the type of career development support that they would like to receive (fig. 9.7 overleaf). The most common selections were:

Training course provided by a professional body	17 (34%)
Training course provided by my institution	13 (26%)
Mentoring organized through my institution	12 (24%)

**Fig. 9.7 Types of career development support that NIRGs would like to receive (n=50)**



NIRGs suggestions and other comments about career development support indicated that they want more opportunities to identify independent mentors and to network specifically with others at the same career stage as themselves. There was an indication that support aimed specifically at NIRGs and addressing the management of resources and funding strategies would be welcomed as would raising the profile of NIRGs and improving universities’ understanding and recognition of the specific career development aims of the grant.