

Training in academic medicine: a way forward for the new millennium.

A discussion document from the Academic Medicine Committee of the Royal College of Physicians)

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ABSTRACT – Three schemes are presented for discussion whereby physicians undergoing postdoctoral training can combine a period of research training with their clinical training and so enable those who wish to follow a career in academic medicine to do so, or alternatively to revert to a clinical career. The training arrangements for those wishing to take up clinical academic medicine have hitherto been uncertain and hence unattractive to some. As well as encouraging more high-calibre trainees into academic medicine, the training programmes described are intended to bring greater clarity to those responsible for academic and clinical training and to those who fund research.)

Background

A key objective of the Academic Medicine Committee of the Royal College of Physicians is actively to encourage young physicians to take up a career in academic medicine. However, the complexity and uncertainty surrounding the pathways of training are dissuading some from taking up this option. The problem has been further exacerbated by the development of the specialist registrar grade, with its attendant difficulties of dovetailing an excellent clinical training with a comprehensive period of research training; such training should incorporate an initial period aimed towards obtaining a higher degree, followed by a period of postdoctoral research. The former is essential to convince the wider medical community of the trainee's clinical competence to specialist status, and the latter is of paramount importance if newly-trained clinical academics are to be effective researchers and compete successfully for research funds. Attention must also be paid to training in teaching for those who intend to work in undergraduate medical schools.

In addition to providing academic trainees with clarity about their training programmes, this document aims to

provide a rational framework to guide those responsible for academic and clinical training in the NHS and in the higher education sector. It is imperative that senior academics address clinical training issues adequately when advising those interested in training in academic medicine. It is equally important for NHS training advisers to understand the academic issues and maintain a positive and flexible approach towards this group of trainees. Both should remember that these individuals are attempting to acquire expertise in two complex environments with potentially conflicting demands.

The organisations that fund research training for clinical academics would also value national clarity over the relationship between clinical training and training in research. They have a major interest in ensuring that their research training programmes attract the highest quality individuals and that a significant proportion remain in clinical academia and conduct high-quality research backed by a strong clinical background and expertise, usually in a specialist clinical field.

There is therefore a need to clarify the nature and timing of training programmes in academic medicine if we are to provide the nation with a continuing stream of high-quality, well-trained clinical academics for the new millennium.

We stress that these proposals are directed at career academics. We continue to feel strongly and to recommend that *all* trainees in internal medicine and its specialties should have at least one year, or the equivalent on a day release basis, of research training and appreciation. In this discussion document we examine possible career structures for those who first wish to undertake research for a higher degree (Phase I below) and who, if successful and motivated, will continue thereafter on a clinical academic career (Phase II).

TRAINING IN ACADEMIC MEDICINE – THE PROPOSED SCHEMES

The proposed schemes have been developed by the Academic Medicine Committee of the Royal College of Physicians, in consultation with trainees in academic medicine, senior clinical academics and representatives of the Medical Research Council (MRC), NHS Research &

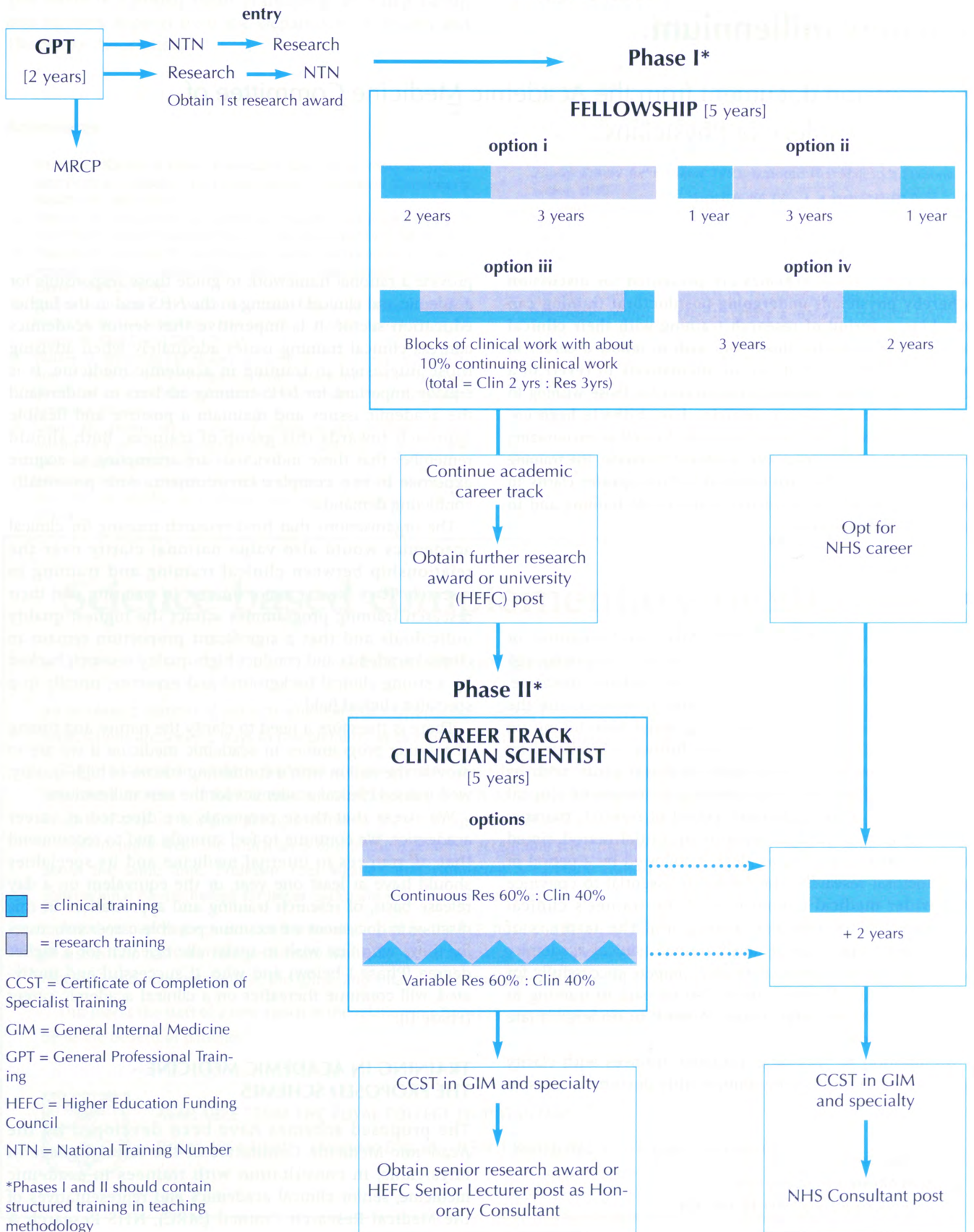
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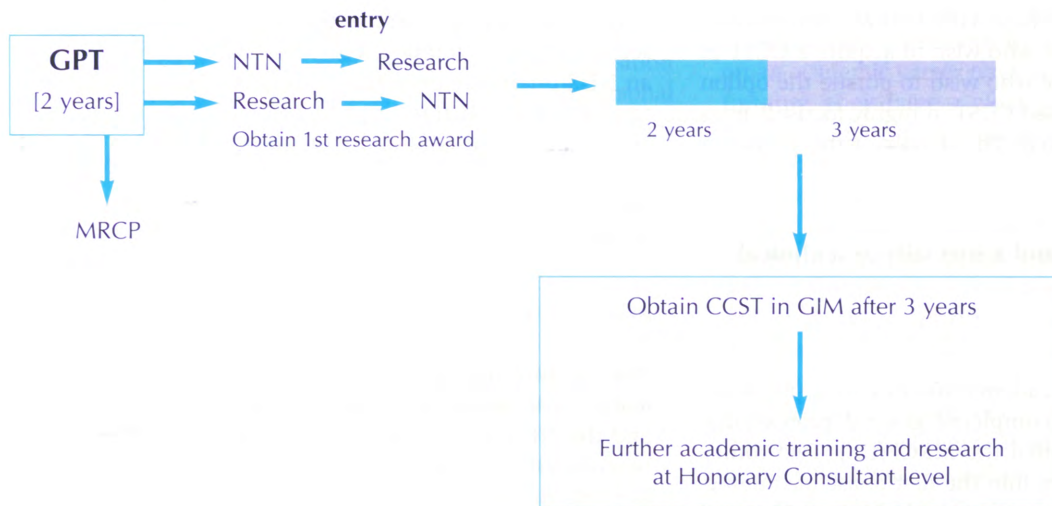
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a) GIM + Specialty

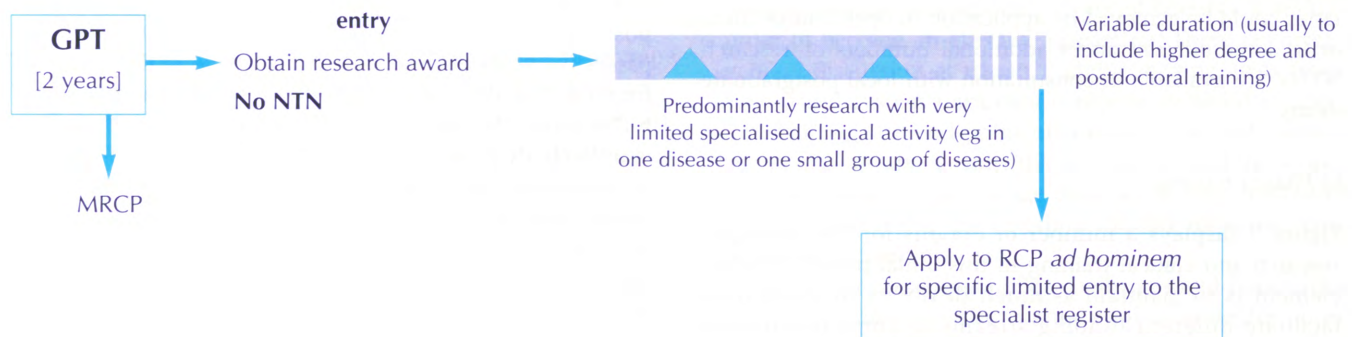
Fig 1. Schematic representation of training schemes for academic medicine.



b) GIM only



c) Individualised entry to the specialist register



Development, Wellcome Trust and other members of the Association of Medical Research Charities (AMRC). The proposal is intended as a discussion document for wide dissemination and will be circulated to key stakeholders and provide them with the opportunity to comment. It is imperative that there is wide ownership of the proposed schemes and in particular that the proposal is acceptable to the NHS and the higher education sector, before it moves on to an implementation phase.

The key features of the proposed schemes are outlined in Fig 1. The most important principle is that for those wanting to obtain a Certificate of Completion of Specialist Training (CCST) in both general internal medicine (GIM) and their chosen specialty (the commonest form of training for clinical academics, see Fig 1), the proposed schemes divide the full period of training as a clinical academic physician into two distinct phases:

Phase I

The first ‘fellowship’ phase of five years comprises a three-year period of research training and the opportunity to obtain a higher degree, together with the first two years of specialist registrar (SpR) clinical training. As SpR programmes allow one year of research as part of their content, this period provides a total of three years of SpR training.

Phase II

The second phase of five years provides for a period of post-doctoral research training and the opportunity to develop an independent research profile, coupled with the final two years of SpR training and acquisition of a CCST in both GIM and the chosen specialty.

The clinical content of these training programmes would be identical with those undertaken by other (non-academic) trainees in the specialty (see 1(e) below). Alternative schemes are given for those who wish to acquire a CCST in GIM only (Fig 1(b)) or those who wish to pursue the option of obtaining an individualised CCST in highly focused areas of clinical expertise (Fig 1(c)). The details of the proposed programme are as follows:

1. Training in both GIM and a specialty as a clinical academic

a) *Entry*

All entrants into clinical academic training as a physician will be expected to have completed general professional training and to have obtained the MRCP(UK). Two routes are then suggested for entry into the first phase of training. The first would be to compete for and obtain a National Training Number (NTN) in the relevant specialty and then to obtain a first research award (from the MRC, the Wellcome Trust, NHS R&D or other AMRC) either contemporaneously, shortly after, or in the early years of the clinical training programme. The second option would be to acquire the research award first and the NTN second. The latter could be achieved by application in open competition, or in some circumstances additional numbers of 'research NTN's' are available in consultation with local postgraduate deans.

b) *Phase I training*

Figure 1 displays a number of options for the timing of research and clinical training in this initial period. The key element is to maintain as much flexibility as possible to facilitate different funding streams to come together to create schemes for individual trainees. The preferred option of the RCP Academic Medicine Committee is for research training to occur after an initial period of clinical training as an SpR (Fig 1(a), Phase I, options (i), (ii), (iii)), as this provides continuity of research training and an individual's personal research development between both the proposed phases of the scheme. It is accepted that this will not always be possible and that there are some individuals who obtain research training awards while still in the senior house officer (SHO) grade. In these circumstances option (iv) would operate, with acquisition of an NTN after obtaining an initial research award. This may be appropriate for those already certain about which specialty they wish to follow or who have previous research experience. It is less appropriate but currently inevitable for those unable to obtain an SpR post because of the log jam at this point in many specialties.

c) *End of Phase I*

This is a critical decision point in the proposed programme and provides the opportunity for trainees in academic

medicine to reconsider their career choice. At the same time it provides an opportunity for a further element of selectivity to operate, as there is the requirement to fund this second phase of training. For those who opt for resuming an NHS-oriented career, this point provides an opportunity to cease research training and resume clinical training to obtain a CCST in GIM and their chosen specialty. This will require a further two years of SpR training, which must be organised in consultation with the training director and postgraduate dean.

d) *Funding for Phase II*

The funding opportunities for Phase II are multi-agency and include the research funding organisations, universities and the NHS. It is recognised that there will, by necessity, be competition to move from Phase I to Phase II training, but this provides a clear opportunity to guide those less suited to an academic career to positive alternatives. The RCP Academic Medicine Committee would like to encourage a blurring of the margins between university (Higher Education Funding Council (HEFC)-funded) clinical academic training posts and those funded by the research organisations. The term 'clinical lecturer' should be modernised to reflect the continuing training needs of these posts. The term 'career-track clinician scientist' encompasses the spirit of these posts irrespective of the source of funding. It is also felt strongly that a small national pool of NTN's should be available for those moving into Phase II. It is unlikely that the numbers will be large and the majority of individuals moving into Phase II will be heading for career academic posts rather than NHS consultant jobs. It is justifiable therefore to remove them from the ordinary manpower calculations. This would then free up their previous NTN's for normal trainees.

e) *Phase II*

This is a second five-year period of combined research and clinical training. The proposal is for a ratio of 60:40, of research:clinical training, allowing for the final two years of SpR clinical training. During this period the intention is to provide maximum flexibility for both elements of the training and it is envisaged that these will be tailored to individual requirements in consultation between the academic group, the postgraduate dean and the training director. By this stage, the individuals concerned will have been highly selected and will in effect have identified themselves as an important future resource for the nation. In addition to completing their clinical training, the purpose of this period will be to allow them to develop their own independent research profile. It is therefore essential that their clinical training is specifically tailored to facilitate this process. For example, it is considered important for the clinical training to take place in close proximity to the research base. Wherever possible, this should be the same hospital.

f) End of Phase II

At the end of the second phase of training, trainees would obtain a CCST in both GIM and their chosen specialty and be eligible to apply for a senior clinical academic position (HEFC-funded senior lectureship) or continue with personal research career development awards via the research funding organisations (Senior Fellowship awards etc).

2. Training in a specialty only, or in GIM only

The Academic Medicine Committee recognises that some clinical academics currently opt to obtain a CCST in GIM only, without a specialty, thereby often reflecting the nature of their research and/or their future intention to practise GIM only. This option should remain open to those who wish to pursue this route (see Fig 1(b)). Schemes could also be designed for those who wish to pursue training in a specialty only. The duration of such schemes would be specialty-specific, but they should adhere to the principles outlined in section 1.

3. Obtaining individualised entry to the specialist register

The current regulations allow some individuals to become listed on the specialist register in very highly-focused areas of clinical expertise, usually of direct relevance to their own research interest. This pathway is likely to be used less in the future, but the view of the Academic Medicine Committee is that it is important that this option should remain open for the occasional, specific individual case.

Discussion

The schemes we have outlined in this article clarify the timing and nature of training required to become a clinical academic physician. They have been designed within the constraints of existing rules and regulations and the expectations of both the NHS and the higher education sector. They have the advantage that they could be implemented with relative ease as they largely use and conform to existing structures. They are, for example, entirely consistent with the current SpR training programmes but are extended to incorporate the need for advanced research training. The proposed schemes are consistent with the funding streams currently available from the research organisations, with the exception that the career-track clinician scientist phase has been extended from four to five years. Wellcome Trust Clinician Scientist Fellowships are already available for up to five years and the MRC has indicated a willingness to extend its existing programmes.

The two-phase design has much to commend it both for trainees and for clinical academia in general. For trainees there is always the uncertainty of whether or not they will

enjoy research until they have tried it. The two-phase scheme described provides the option to change course if individuals find that they would prefer to develop their clinical career. Alternatively, if trainees decide to continue on an academic career track and are successful in obtaining funding, they have a clear pathway to completing their clinical training to a high standard and an opportunity to develop their independent research career, before moving on to a more senior position. For clinical academia in general the major advantage in the two-phase scheme is the competitive nature of entry into the second phase which will involve peer review of quality. This will ensure that at this stage the country's limited resources are focused on those individuals most capable of becoming the clinical academics of the future. Moreover, they will have been provided with a comprehensive tripartite training (clinical, research and teaching) that will leave them in a position to be effective clinical academics, capable of responding to the demands and expectations of the RAE, QAE and the NHS environment.

The major disadvantage of the proposed schemes is the length of training necessary to become a fully-trained and effective clinical academic physician. This was an issue of much discussion within the Academic Medicine Committee, but it seems essential, given the existing rules for clinical training and the real need for advanced scientific training in order to become an effective researcher. There is currently general discussion at the RCP about moving away from a time-based system towards a competency-based system of determining the end-point of training. The difficulties of such a change are considerable and are beyond the scope of this discussion. If this change does occur, then it would be possible to decrease the length of training for some clinical academics accordingly.

The proposed schemes offer challenges and issues which must be addressed. The higher education sector should consider the role and future of the 'clinical lecturer'. If this role is not adjusted to mirror the opportunities available for trainees funded by the research organisations, then it will be perceived by many to be less favourable and the standard of applicants will fall. We consider it essential that these posts are modernised to reflect the tripartite training needs of the individuals in post and in particular that such posts provide adequate time for research training and activity, rather than being overloaded with clinical work. The proposed schemes also provide challenges for the NHS: they will be heavily dependent on postgraduate deans, training directors and consultant colleagues who participate in SpR rotations, being flexible in providing a) appropriate clinical training for their academic trainees and b) opportunities within their rotations for individuals to pursue an academic option and their initial period of research training. Many are already extremely helpful in this regard but the national experience has been patchy. A more uniform national approach to such issues would be an important step forward in improving training and training opportunities in clinical academic medicine.

In summary, the Academic Medicine Committee presents this proposal for training in academic medicine for physicians to the wider medical community for discussion, refinement and subsequent implementation. This is considered to be of national importance to safeguard the future of academic medicine and to provide the nation with

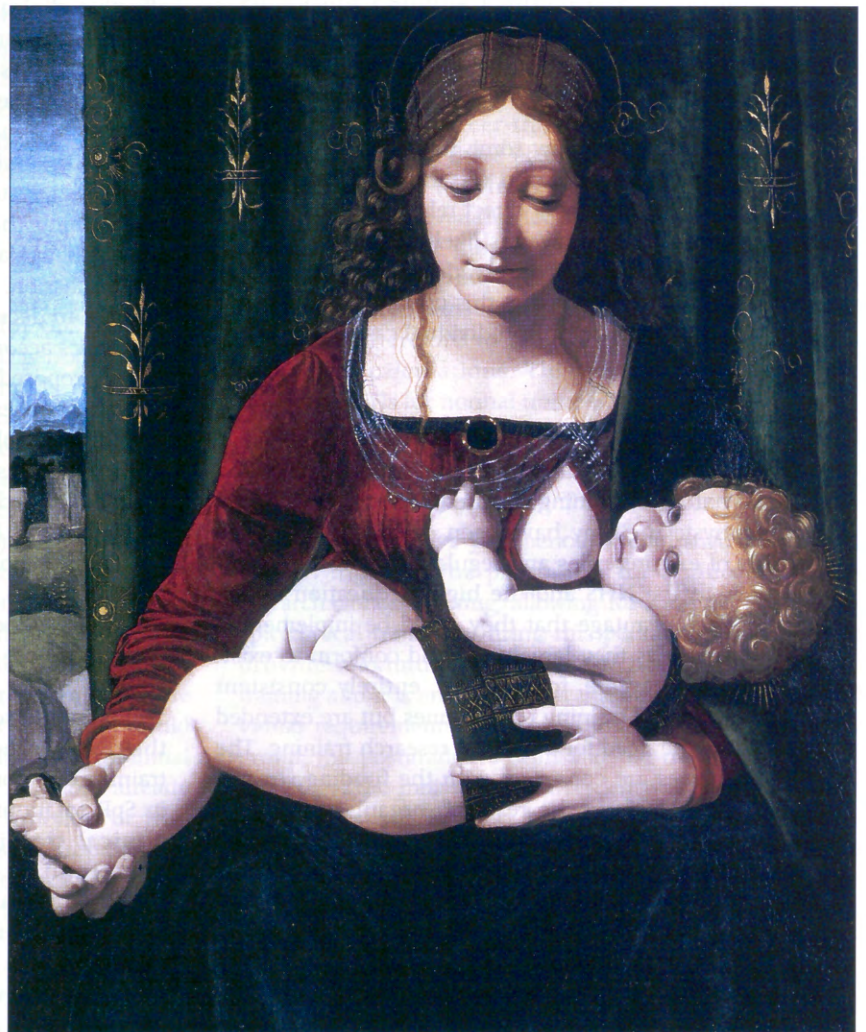
a continuing supply of well-trained and effective clinical academic physicians for the new millennium.

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Plantar response

by Philip E M Smith, Consultant Neurologist

Antonio Giovanni Boltraffio's (1467–1516) *The Virgin and Child* is the clearest example in the National Gallery of an extensor plantar response, a normal phenomenon in young babies. The response was first described by Joseph Francois Babinski, a pupil of Charcot. The unmasking of the primitive reflex in disease is well known following the damage to the central motor pathways (eg stroke or spinal cord disease) but infants show this response as their motor pathways are not yet fully myelinated. Several other well known pictures, also painted hundreds of years before Babinski's description, show a baby's toe extending in response to stroking of the sole. In Boltraffio's picture, the Virgin holds the baby's foot and, as any mother might observe, the baby's toe extends. Such attention to physiological detail is just what one would expect of a pupil of Leonardo.



Courtesy of The National Gallery, London