

PHARMACY WORKFORCE PLANNING & POLICY ADVISORY GROUP

**FUTURE PHARMACY WORKFORCE REQUIREMENTS;
WORKFORCE MODELLING AND POLICY RECOMMENDATIONS**

EXECUTIVE REPORT

**Report commissioned by the Royal Pharmaceutical Society of Great Britain
on behalf of the Chief Pharmacists for England, Scotland and Wales**

Professor David Guest

Professor of Organisational Psychology and Human Resource Management
and

Dr Sarah Battersby

Dr Patricia Oakley

The Department of Management
King's College, London
Franklin-Wilkins Building
150 Stamford Street
London
SE1 9NH

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FOREWORD

For the last two years¹ an Advisory Group of senior pharmacists and pharmacy technicians from across the profession have worked with Professor David Guest and his research team, senior executives from the NHS and the pharmaceutical industry and lay members to advise the Health Departments (in England, Scotland and Wales) and the Royal Pharmaceutical Society in their work to develop a workforce planning model for pharmacy. I am delighted, as Chairman of the Group, to present the report of the Pharmacy Workforce Planning and Policy Advisory Group to you.

What follows is a thorough analysis of the factors that are likely to affect the future demand for pharmacy services from the very technical and scientific to clinical, patient-focussed care over the next ten years, and a robust analysis of the factors that are likely to affect the future supply of pharmacists and technicians to deliver them. A workforce planning model has been developed, tested and used to explore a number of possible policy options and combinations based on the research. The Group has also made a number of recommendations to help employers to develop employment policies which will meet the emerging workforce challenges.

Whilst most pharmacists and technicians will be delivering services and care for NHS patients, the majority are employed by private businesses rather than by the NHS. These businesses might be large public companies with shareholders or small family firms but all are subject to a range of commercial pressures not normally relevant to health care workforce planning. Employers, whether they are in the NHS or in the private sector, will need to be alive to the opportunities that the pharmacy labour market offers so they can maximise their recruitment and retention strategies.

This work has revealed a remarkable level of complexity in the pharmacy workforce – pharmacy workforce planning will as a result be challenging but we are confident that the model we have developed will help those charged with the task to take better informed decisions despite the inherent complexity.

The model has been designed to accommodate many of the variables that were identified in the research, and as a result, planners and policy makers will be able to alter the variables and test the impact of different scenarios and policy options to assess their collective impact on the future balance of demand for, and supply of, pharmacists. Crucially, the model is not static as it can grow and develop as the profession changes in respect to the changing healthcare and commercial environments.

Pharmacists like all health professionals face a challenging and rewarding future as the emerging patient safety and public confidence agendas unfold. We have deliberately included factors that will reflect the growing need for continuing professional development, revalidation and clinical governance so that pharmacy has the capacity to implement these important requirements in the future. I commend this Report to you and would encourage the Health Departments, the Society and employers to use this model to help in planning a future pharmacy workforce that is fit for practice and fit for purpose in the 21st century.

I would like to express my thanks to the secretariat team from the Society and to Professor David Guest and his research team at King's College, London, who have worked tirelessly to follow up the Advisory Group's advice and to turn our hours of deliberation into a robust model that I anticipate will serve the pharmacy profession, the NHS and the employers well. Finally, I would like to thank the members of the Advisory Group (a list of the members is provided in Appendix 1), who all worked incredibly hard over a series of very detailed meetings and who contributed their views freely and constructively throughout.

Judy Hargadon

Director, New Ways of Working
NHS Modernisation Agency

¹ Main Report covers period 2003-2004.

**Future Pharmacy Workforce Requirements;
Workforce Modelling and Policy Recommendations**

EXECUTIVE SUMMARY

1. The aims of the study were to develop a proactive and responsive system for analysing future workforce needs in pharmacy and to make recommendations on how future supply and demand could be managed.
2. To achieve this, a team from the Department of Management at King's College London was commissioned to undertake the research, working under the broad guidance of an Advisory Group consisting of representatives of the main interest groups in pharmacy within the United Kingdom and of consumers.
3. The research team collected data through analysis of the published literature and unpublished reports, interviews with a cross-section of representatives of the various sectors of the industry, a Delphi exercise among the Advisory Group members and attitude surveys among samples of pharmacists and pharmacy technicians. There were also several meetings involving feedback to and advice from the Advisory Group.
4. Details of the outcomes of all these activities are contained in the main report and its appendices.
5. A major outcome of the study is a sophisticated workforce model based on a set of agreed assumptions about key indicators of supply of and demand for pharmacists. This provides a flexible workforce planning tool with which a range of assumptions about the impact of changes in demand and supply can be tested.
6. There is currently a shortage of pharmacists in employment. The analysis indicates that demand for pharmacists' services will continue to outstrip increases in the supply of pharmacists for the foreseeable future unless action is taken to change the supply, the demand and/or the utilisation of pharmacists. On this basis, the Advisory Group offers the following recommendations:

Recommendations

7. Supply of pharmacists should be improved through a promotional campaign highlighting the attractions of pharmacy as a career. This is intended to reverse the modest decline in the numbers applying for university places to study pharmacy and to ensure that the quality of applicants is maintained and matched appropriately with demand for services.²
8. The Royal Pharmaceutical Society of Great Britain (RPSGB) should work closely with universities and in particular employers to highlight the range of career options within pharmacy and to ensure opportunities to gain relevant experience.
9. The RPSGB should work with universities and employers to expand pre-registration places, and to develop pre-registration year models that deliver high quality and appropriate training whilst meeting the requirements for additional capacity, perhaps building on experiences in medical training, that ensure high

² Since researching this in 2003/04 and finalising the Main Report, the latest figures on student application rates and recruitment to the Schools of Pharmacy in 2005 show a positive trend; the reasons for this change are as yet, unknown.

quality placements, effective supervision and independent learning on the part of the student.³

10. To meet the expectations of young pharmacists, employers should pay special attention to job design, appropriate professional development in the important early years of practice, and the provision of breadth and challenge in pharmacy roles; and to accommodate the changing ethnic and gender mix of the pharmacy workforce, employers should pay special attention to ensuring employment flexibility. Examples of good practice should be publicised.
11. There should be a national “return-to-pharmacy” campaign and the development of more “return to practice” refresher courses.
12. The specific problem of the recruitment and retention of academic pharmacists should be more closely investigated to explore issues such as role allocation and reward systems and assess the feasibility of joint appointments and related career pathways.⁴
13. At present it is only possible to enter pharmacy through a pharmacy degree programme. It is recommended that there should be an investigation of alternative entry modes, notably for graduates in cognate disciplines and for pharmacy technicians. It is recognised that these are complex issues with a long lead-time and the exploration of their feasibility therefore deserves a high priority.
14. Dependence on pharmacists should be reduced through greater use of skill-mix, greater investment in and use of technology, and consideration by government and the industry of the feasibility of increasing efficiency in the dispensing process e.g. by extending the period of prescription for some standard repeat prescriptions.
15. To increase the attractiveness of the pharmacist’s role and help to raise morale and retention among some community pharmacists, it is recommended that the Society continues to encourage and promote the agreed development of the advisory role of pharmacists, monitors its impact carefully and highlights examples of good practice.
16. Management of employment relations and of the ‘psychological contract’ should emphasise good human resource practices and features of job design highlighted in the surveys of pharmacists and pharmacy technicians. These should help to increase commitment and retention. Crucially, careful management of the ‘psychological contract’ could also affect working hours in a context where a small increase in average working hours, reversing a recent decline, could do much to alleviate the shortage of pharmacists.
17. Action should be taken now to improve workforce planning in the medium term. This will require careful coordination across the sectors and government departments. Related decisions will benefit from using the model developed for this study. We recommend that this model should be regularly updated and made available for wider use. There is also a case for repeating the attitude surveys on a regular basis to monitor trends in the attitudes and commitment of those working in pharmacy and to provide an essential input to the model.⁵

³ Since finalising the Main Report, the Department of Health (England) has funded and commissioned an expansion in pre-registration training places.

⁴ Since finalising the Main Report, the RPSGB has commissioned from the King’s College team a follow-up study of the academic workforce to identify the key strategic staffing issues and risks for future recruitment and retention of academic pharmacists. The findings will be available in the summer of 2007.

⁵ Since finalising the Main Report, the RPSGB has commissioned from the King’s College team a follow-up attitude survey which will start in the spring of 2007.

1. Introduction

The Royal Pharmaceutical Society, the Department of Health for England and its equivalents for Wales and Scotland are concerned about the pharmacy workforce in the future and have agreed to support a review to identify the issues and to build a workforce planning model. To this end, the Royal Pharmaceutical Society, on behalf of the respective Departments of Health commissioned a review in January 2003 under the governance of a newly set-up Pharmacy Workforce Planning and Policy Advisory Group which was chaired by Judy Hargadon, who was then Director of the New Ways of Working Programme in the Modernisation Agency of the Department of Health for England.

2. The Terms of Reference

The Terms of Reference for the Advisory Group are set out below:

The purpose of the Advisory Group is to develop a proactive and responsive system for scoping future workforce needs in pharmacy and to make recommendations on how future supply and demand could be managed, which:

- are based on an understanding of the potential needs of future service provision;
- balance supply with demand in the labour market;
- have the capability and capacity to respond to imperatives as they arise based on horizon scanning and scenario planning.

The recommendations should demonstrate consideration of the following factors:

- Key drivers influencing the future delivery of pharmacy services across and within sectors including: public demand; government policy; technology and economic structures.
- The impact of these drivers on: service provision; roles, structures and organisation; education and professional development.
- Benchmarks both outside and within the health sector.
- The views and needs of key stakeholders including: providers of NHS services (both public and private sector); government, including the devolved administrations; academia; education and training funding bodies, including HEFCE, central government and Workforce Development Confederations; and the public.

The members of the Advisory Group are shown in Appendix I.

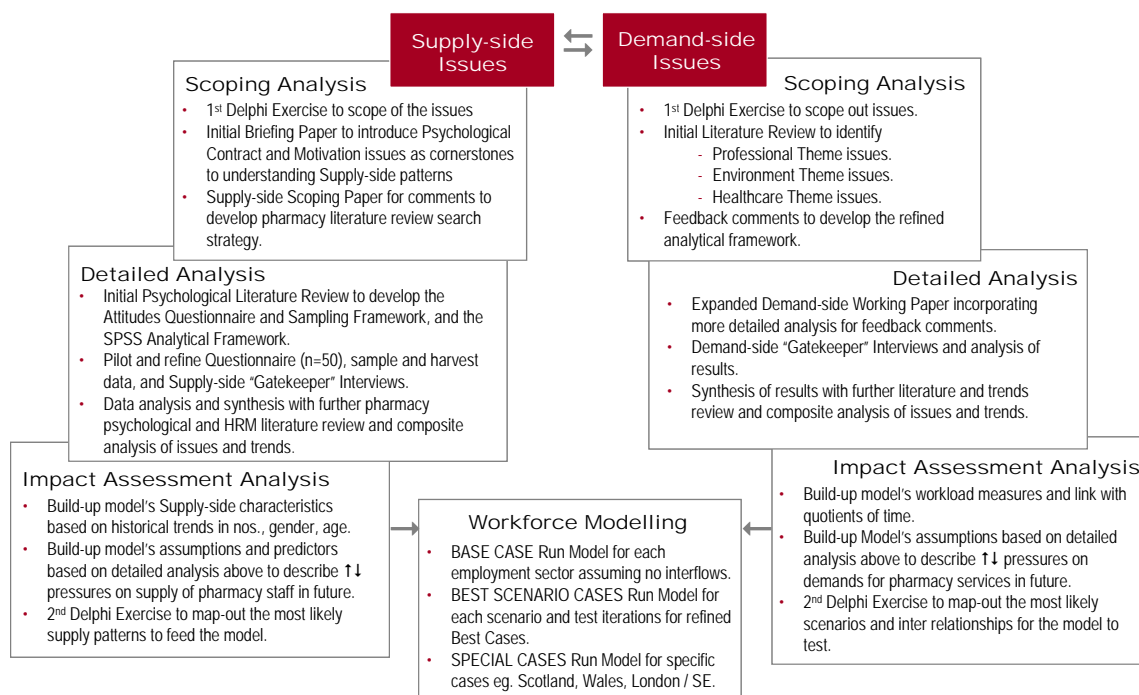
3. The King's College, London, Human Resource Management Research Team

To support the work of the Advisory Group, the Royal Pharmaceutical Society, on behalf of the Departments of Health commissioned a specialist Human Resource Management Research Team based at The Department of Management, King's College, London, under the leadership of Professor David Guest. In addition to Professor David Guest, the core members of the team were Dr Sarah Battersby and Dr Patricia Oakley. The Department of Management at King's is part of The School of Social Science and Public Policy and the Human Resource Management Research Group conducts a number of major national and international research programmes which includes work for the Department of Health for England's Divisions of Nursing, Human Resource Management and Research and Development.

4. The Analytical Road Map to Build the Workforce Planning Model

The workforce planning model's data fields were built-up using the demand and supply-side information collected during the study from primary and secondary sources and the test conditions were developed iteratively from the literature and research programme, and guided by expert opinion. The whole work programme is summarised below:

The Analytical Roadmap to Build the Workforce Planning Model



5. The Demand-Side Overview

5.1. Based on the 2002 and 2003 Pharmacy Workforce Censuses (GB), there are five main employment sectors which provide the major demand for pharmacists:

- the community sector employing about 66% of registered pharmacists;
- the NHS-hospital sector employing about 18% of registered pharmacists;
- primary care sector employing about 6% of registered pharmacists;
- the Pharmaceutical Industry and its Supplier and Support Agencies employing about 5.5% of registered pharmacists;
- the Schools of Pharmacy (which operate under the aegis of the Department for Education and Skills in England and its equivalent within the Devolved Administrations for Wales and Scotland) accounting for about 2.2% of registered pharmacists.

5.2. An analysis of the main government policies and initiatives, industry reviews and publicly quoted company accounts showed that there seem to be three key complementary themes which have driven, and are driving, the increasing demand

for pharmacy services and pharmacy staff's time in each of the five employment sectors. They are:

- **The “Professional Quality Assurance” Theme** – consisting of Government Laws and Regulations; several key Test Cases and Inquiry Reports; and Command Instructions which have reformulated and expanded the pharmacist's and technician's roles over time.
- **The “Organisation of Pharmacy Provision” Theme** – consisting of the working and technological environment, especially concerning the range of services and opening hours in the retail sector; the constantly changing NHS environment, especially concerning patients' access to more timely service provision; the industrial environment, especially concerning the growth in expectations for safer and novel treatments that are brought to the market relatively quickly compared to the past; and the education environment, especially concerning the need to service the relatively rapid student expansion of the past 10 years with suitably qualified teaching staff.
- **The “Healthcare Expansion” Theme** – consisting of the underlying demands for more services that are related to an ageing population; the government's funding policies for the NHS and universities; and the development of gene technology and novel treatments and delivery systems to treat previously untreatable or low prognostic conditions.

5.3. An important issue arising from this initial demand-side analysis was the need for conceptual clarity and the separation of:

- the demand for pharmacy services;
- the organisation of their provision e.g. the growth of the multiples and the use of technology;
- and the implications of the above for the demand for pharmacists and technicians.

Based on research, the following assumptions have been used to develop the workforce model. Some assumptions indicate clear trends; the implications of others for demand are as yet uncertain. These assumptions form the basis of the 'base case' scenario used to illustrate the predictive power of the model.

5.4. Community Pharmacy

The key research findings are:

- the community pharmacy business will expand mainly on the basis of the prescription dispensing business at a rate of 8 to 9% per year for the next 3-5 years for the bigger chains (5 or more pharmacies) and the “multiples”, and at a rate of 1% for the independents;
- the structure of the business, i.e. the proportion of businesses represented by the independent and small chains, (less than 5 pharmacies), and by the bigger chains (more than 5 pharmacies) and “multiples”, will shift in favour of the latter at a rate of approximately 2% per year over the next 10 years;

- the impact of introducing new technology to increase the efficiency of the prescription dispensing business will mainly affect the efficient use of pharmacists in the bigger chains (more than 5 pharmacies) and “multiples” where there is a high volume of dispensing;
- similarly the shift in government policy concerning deregulation and market entry, and the development of an “e-pharmacy” business and the “warehouse dispensing” model will affect the efficiency of the very high volume dispensing businesses;
- the potential new business arising from the government’s policies to expand the NHS non-dispensing advisory services described in the new pharmacy contract;
- the pace of development of innovative new community pharmacy practices may be marginal for the foreseeable future as it will depend on local service commissioners and their budgets and investment priorities;
- the demand for community pharmacists may rise in the short-term (the next 5 years) to meet the increasing demands arising from the extra Continuing Professional Development (CPD) time and new Quality Assurance requirements of the current changes in the regulations.

5.5. NHS Hospital Pharmacy

The key research findings are:

- the NHS hospital pharmacy service will expand to meet the government’s policies to increase the NHS’s capacity, to develop the pharmacy service and to manage risk at a rate of 3 to 4% per year for the next 3 years;
- the structure of the service will shift to a more networked organisation, including the private sector, to achieve capacity growth and economies of scale where possible;
- the impact of introducing a combination of new technology and skill mix changes, including dispensing robotics, and the transfer of patient and medicines management information, will increase the service’s efficiency but the overall effect will be realised gradually over at least 10 years because of the investment lead time and uncertainties arising from the changing funding mechanisms, particularly in England;
- the shift in government policy, particularly in England, concerning capital investment procedures, deregulation and market entry to aspects of prescription dispensing and manufacturing Quality Control services, as well as the development of a “Managed Care Service” to look after the elderly and chronically ill in their homes may increase efficiency as some of these services are contracted out;
- the pace of development of innovative new NHS hospital pharmacy practices will be facilitated or constrained by the local NHS Chief Executives’ and Service Commissioners’ funding priorities;

- the demand for NHS hospital pharmacists will rise to meet the expanding service demands described above, the current unsatisfied pent-up demand for staff to meet the current service requirements, the extra demands arising from the new clinical governance and risk management requirements, the extra demands arising from the European Directives including managing Clinical Trials, and the extra demands arising from the increased student numbers and their education and training requirements.

5.6. NHS Primary Care Pharmacy

The key research findings are:

- the NHS primary care pharmacy service will expand at best only marginally to meet the government's policies to increase the NHS's capacity to develop the pharmacy service dependent on the overall growth rate of the number of GP Partnerships which is currently projected to be -0.7% based on the trend over the last 5 years;
- the structure of the service will shift to a more networked organisation to achieve capacity growth on the basis of savings accrued from achieving economies of scale; the exponential "start-up" growth trend seen in the past 5 years will not be carried forward in the future;
- the demand for NHS primary care pharmacists will rise to meet the new service demands particularly concerning risk management in the light of the Shipman Inquiry, and the new education and training capacity requirements;
- some of this growth will be reflected in an increased demand for pharmacy technicians rather than pharmacists and demand-side trends for both pharmacists and technicians will potentially be offset by investments in new technology which will be introduced over the next 10 years;
- there may be an additional demand in the future, related to the potential introduction of new private sector entrants (in England) to increase the NHS's capacity quickly to deliver the forthcoming NSF on managing long-term conditions;
- the pace of change may be slowed as the lack of management capacity in primary care organisations to deliver the primary care development agenda requires a less radical approach to commissioning and delivery of primary care services.

5.7. Industrial Pharmacy

The key research findings are:

- the pharmaceutical industry will expand to meet the government's policies to expand the NHS's capacity but this is not expected to have an impact on the number of pharmacists working in industry;
- the structure of the industry is likely to be fragmented with bigger more powerful global R&D companies which are complemented by a large number of small "niche" organisations;

- the operational efficiency of the industry is probably at near maximum in the main as it has invested in, and continues to invest in, its capital infrastructure to stay competitive in a very competitive market place;
- the biggest change to this set of trends is likely to come from a combination of the development of new direct patient care specialist services and from the new biotechnology and gene-based diagnostic and treatment services that will emerge in the next 5-10 years - however, there is no consensus about the net effect on demand;
- the pace of development of innovative new products and services will be dependent, to a large extent, on shareholders' attitudes to risk in the long term as opposed to financial gain in the short term;
- the demand for traditional industrial pharmacists will probably not rise to meet the expanding demands because of the comprehensive changes in skill mix and labour substitution policies that have taken place over the last 20 years. However, there may be some small increase in demand for clinical pharmacists who have worked in primary care organisations or in NHS hospitals to service the big companies' marketing and sales efforts.

5.8. Academic Pharmacy

The key research findings are:

- the academic pharmacy service will continue to expand up to the limits of its capacity, and this growth will be augmented in time with the introduction of new Schools to meet the government's policies to increase the NHS's capacity and to develop an effective clinical pharmacy service;
- the organisation of the Schools will shift in the future to a more networked set of organisations where some teaching and research specialists are shared across institutions;
- the demand for academic pharmacists will rise in the future because of two driving forces: one is based on the expansion discussed above, although the Schools' well-developed skill mix agenda will offset some of this demand and displace it to other more accessible staff groups; and the other is based on the need to redesign the core curriculum to reflect the increasing needs of the NHS's clinical practice development requirements;
- the impact of introducing new technology teaching aids will be limited;
- the uncontrolled introduction of the new Schools will create a potential surge in demand especially because of their greater emphasis on practice-based multi-disciplinary teaching methods and their consequent requirements for many more practice-based clinical placements and clinical pharmacy teachers and supervisors;
- the pace of change in the academic sector is great and there is no indication that this pace will be slowed by any of the developments taking place in the NHS.

6. The Demand-Side Base Model

6.1. To build the demand-side model, a key step was to identify appropriate measures that linked changes in demand for pharmacy services to the number of pharmacists required to meet demand. Following extensive review and discussion, and building on evidence about current practice, the following ratios were established and used in the base model:

- Community Pharmacy: 20 script items per pharmacist hour.
- NHS Hospital Pharmacy: 0.39 whole time equivalent pharmacists per 1000 FCEs (Finished Consultant Episodes).
- NHS Primary Care Pharmacy: 0.20 whole time equivalent pharmacists per GP Partnership.
- Industrial Pharmacy: weighted demand based on $0.7 \times$ the average number of new medicines introduced per year + $0.2 \times$ the number of new medicines in Phase 3 clinical trials + $0.1 \times$ the number of GP Partnerships.
- Academic Pharmacy: 29 undergraduates in Schools of Pharmacy per pharmacist.

6.2. Using the assumptions listed above about changes in demand and about how demand translates into requirements for pharmacists, and assuming that nothing else changes, a ten year estimate of the numbers of pharmacists needed in each of the key employment sectors is as follows:

The Estimated Total Number of Pharmacists Required				
Pharmacy Sector	No. of Pharmacists Required (WTE)*			Projected 10 year Growth Rate
	2003	2008	2013	
Community Pharmacy chains >5 and "multiples"	15,612	24,943	33,670	+116%
Community Pharmacy chains <5 + independents	12,314	13,690	14,974	+22%
NHS Hospital Pharmacy	6,525	7,652	8,975	+38%
NHS Primary Care Pharmacy	2,063	2,542	3,132	+52%
Industrial Pharmacy	1,140	1,104	1,068	-6%
Academic Pharmacy	270	404	525	+94%
Total Requirements	37,924	50,335	62,344	+64%

**"WTE" calculation based on a 33 hour working week.

7. The Supply-Side Overview

7.1. To develop the supply-side model, we need to understand what affects the employment decisions of staff, including decisions about choosing pharmacy as a career; decisions about choice of branch of pharmacy and of organization; decisions about employment arrangements, including employment contract and hours; and decisions about movement within and out of pharmacy; and also how these decisions and changes affect staff's motivation and commitment to their job, career, organisation and the profession. In an attempt to find answers, these issues were explored through surveys of samples of pharmacists and pharmacy technicians. The surveys were conducted within a clear analytic framework informed by the concept of the "psychological contract."

7.2. The survey highlights a number of issues that are likely to affect the propensity of pharmacists to continue to work in pharmacy and their willingness to work different hours. Specifically:

- commitment to a career in pharmacy reduces the propensity to quit. This is important in a context where there is quite a high level of apparent regret about choosing pharmacy as a career;
- when expectations about the current job are met, which in turn is strongly associated with job satisfaction, there is a lower propensity to quit pharmacy;
- those reporting high levels of work-life conflict are more likely to consider quitting;
- perhaps surprisingly, those reporting high levels of work overload are less likely to quit. This is partly because some of these are often the more senior pharmacists who have a high level of control, have a strong commitment to being part of a helping profession and have opted to work long hours;
- those who are self-employed and those who have permanent part-time jobs are more satisfied that they are on their employment contract of choice than those who are conventional full-time permanent employees. This may indicate that part-time workers are reluctant to alter their employment status and work longer hours.

8. The Supply-Side Base Model

8.1. The supply side model can be estimated with some precision for the next five years and thereafter becomes more uncertain. We have good information about the numbers likely to enter pharmacy via the Schools of Pharmacy and about the numbers reaching retirement age. There is less certainty about the proportion likely to leave or re-enter pharmacy and about the willingness to adjust the number of weekly hours. However we have information on recent patterns from both the Society's Censuses and the Attitude Survey. These also provide us with information about average weekly working hours.

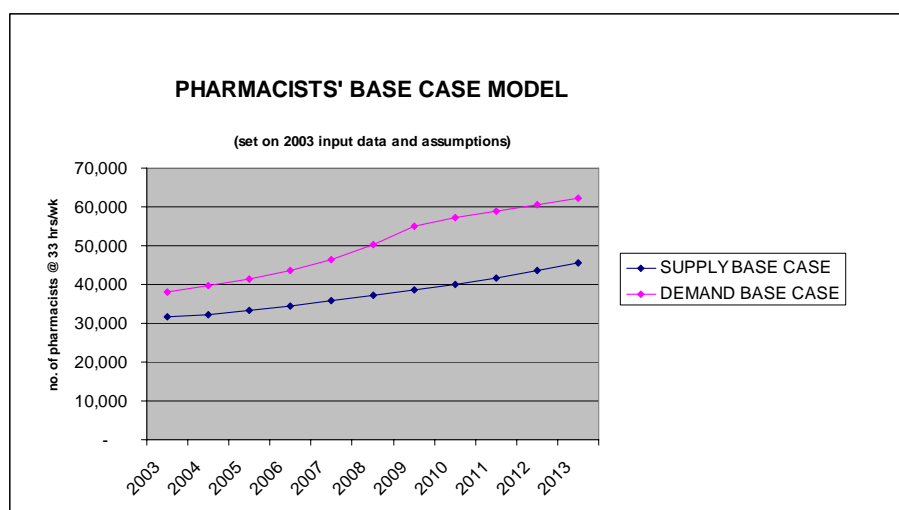
8.2. The supply-side model is built on the evidence that the current average contracted working week is 33 hours. The whole time equivalent is therefore based on a 33 hour working week and an assumption of 5 weeks of holiday (including 5 days Bank Holidays) and one week of illness per annum. Assuming that current trends remain largely unchanged, and the phased introduction of 8 new Schools of Pharmacy over the next 10 years is successful,⁶ the projected supply of pharmacists over the next ten years is set out below:

The Estimated Total Number of Pharmacists Available				
Pharmacy Sector	No. of Pharmacists Available (WTE)*			Projected 10 year growth rate
	2003	2008	2013	
Community Pharmacy – chains >5 and “multiples”	10,021	11,743	14,411	44% (incorporates 8 new Schools of Pharmacy)
Community Pharmacy – chains <5 and Independents	11,691	13,700	16,812	
NHS Hospital Pharmacy	6,213	7,281	8,935	
NHS Primary Care Pharmacy	2,372	2,779	3,410	
Industrial Pharmacy	1,137	1,333	1,636	
Academic Pharmacy	270	316	388	
Base Case Total	31,703	37,153	45,592	

**“WTE” calculation based on a 33 hour working week.

9. Building and Running the Pharmacy Workforce Planning Model

9.1. The preliminary analysis indicates that if current trends (as set out in Section 5) continue, then projecting ahead from 2003, the last year for which full data are available, there will be a very considerable gap between the anticipated demand for 62,344 pharmacists and the expected available supply of 45,592. This is illustrated below:



⁶ Since finalising the Main Report, we now know that at March 2006, 5 new Schools of Pharmacy have been accredited and have successfully recruited student intakes: UEA has students in years 1-3; Medway & Kingston have students in years 1-2; and Reading and Hertfordshire have students in year 1. There may be an additional 2-5 proposed schools coming into the system from 2006/7 and beyond which will produce an out-turn within the model's horizon currently set at 2013.

9.2. It should be noted that even in 2003 there is a gap between demand and supply. Anecdotal evidence suggests that this is covered in a number of ways:

- Working longer hours (the attitude survey indicates that pharmacists work an average of four hours a week longer than their contracted hours).
- Dealing more swiftly with scripts at a rate above the internationally benchmarked levels.
- Cutting back on non-core activities and back-up activities.
- Some reduction in service provision (e.g. out of hours work; reducing access by closing services early; and vacancies left unfilled).
- Extending the role of pharmacy technicians and assistants, and others, to substitute for pharmacists.

9.3. The purpose in developing and testing a workforce planning model is to explore the potential impact of different policy and practice scenarios on the demand and supply assumptions and hence on the size of this gap. In building a workforce planning model, we need to be clear about its objectives and how the data from the annual censuses are synthesised to inform the model and its forecasting parameters. Therefore:

The policy aim of the workforce planning model is to assess overall the future level of risk that there will be an over or undersupply of pharmacists in relation to the demands from public and private sector employers.

The objectives of the model therefore are:

- to assess the future level of risk to the supply-side if the current and projected future attrition rates and average working hours change;
- to assess the current and projected future level of returning pharmacists and those from new sources and their potential collective impact on the supply-side system;
- to assess the current and future demand-side requirements of employers taking into account future trends in the various employment sectors;
- to assess the potential impact on the demand for pharmacists of investments in new technology and mechanisation, substitution and the provision of new services;
- to assess the current capacity constraints in the training system e.g. undergraduate and pre-registration training places, clinical placements and supervision requirements, and the likely impact on the future supply of pharmacists of easing or tightening these constraints;
- to explore the implications of different assumptions about the impact of identified factors that could potentially influence the supply of, and demand for, pharmacists. These are illustrated in the example below.

10. An Illustration of the Model in Use: The Impact of Possible Changes in the Demand-Side and Supply-Side Factors to Move Towards Convergence of Demand and Supply

10.1. Certain changes in the assumptions about demand would considerably improve the chances of moving towards convergence between the demand and supply side factors over the 10 year period. We recognise that for a variety of reasons, some of these changes may not offer acceptable policy trade-offs. They include:

Community Pharmacy

- increase the community pharmacy dispensing efficiency rate (average number of script items dispensed per hour) by 25%;
- change the business model of the high volume dispensing outlets by investing in a combination of dispensing robotics, e-warehouse dispensing, and skill mix changes;
- freeze the introduction of the new pharmacy contract and medicines management service, and the extra continuing professional development requirements as the public finances become tight and new investments in NHS services are limited to maintaining current services.

NHS Hospital Pharmacy

- maintain the growth curve assumptions for first 5 years and then reduce them to 0% as the primary care and chronic disease management services are introduced⁷;
- reduce the number of pharmacists to complete 1000 FCEs (Finished Consultant Episodes, the selected workload indicator for hospital pharmacists) from the current 0.39 WTE pharmacist/1000 FCEs to 0.3 WTE pharmacist/1000 FCEs to reflect the skill-mix/technology shift and some clinical specialities moving to the primary care sector⁷;
- freeze the introduction of extra continuing professional development and risk management programmes as the public finances become tight and new investments in NHS services are limited to maintaining current services.

NHS Primary Care Pharmacy

- deflate the number of GP Partnerships/Practices by 10% over the next 10 years to reflect the loss of small practices as the “Shipman” and primary care reforms are introduced;
- hold the average number of pharmacists per GP Partnership/Practice constant at 0.20 for 5 years until 2008, and then deflate this to 0.15 for the final 5 years to reflect Primary Care Organisations running short of investment resources⁷;
- reduce pharmacist time spent on GP activities from 100% to 80% immediately as technology and skill mix, and economies of scale effects are introduced.

⁷ This combination of demand changes looks unsustainable but historically, NHS staff seem to cope with this by postponing, and even stopping, some work and/or prioritising some for action by working harder and increasing the pressure on staff to do more for less (see 9.2 above).

Industrial Pharmacy

- accelerate the decline rate by 1% a year over 10 years as a combination of new technology and offshore developments are introduced at the same time as the current demand withers on the vine when the current cohort retires and the full skill-mix effect kicks-in to replace them;
- build in a merger “shock” at 3 and 6 years as a result of eased monopolies regulations across Europe and reduce the number of pharmacists working in R&D, manufacturing, QC and QA by 10% each time as a result;
- freeze the extra continuing professional development and risk management requirements as the government exempts industrial pharmacists from the new requirements.

Academic Pharmacy

- increase the pharmacist:undergraduate student ratio from 1:29 to 1:50 as the staff:student ratio is heavily pressurised and substitution of pharmacists by non-pharmacist academics takes place;⁸
- freeze the growth rate in undergraduate student numbers as the current Schools are working to maximum capacity and only 4 new Schools get started;^{9,10}
- freeze the introduction of extra continuing professional development and risk management requirements as the government exempts academic pharmacists from the new requirements.

10.2. At the same time, certain changes in the assumptions about supply would considerably improve the chances of moving towards convergence over the 10-year period. They include:

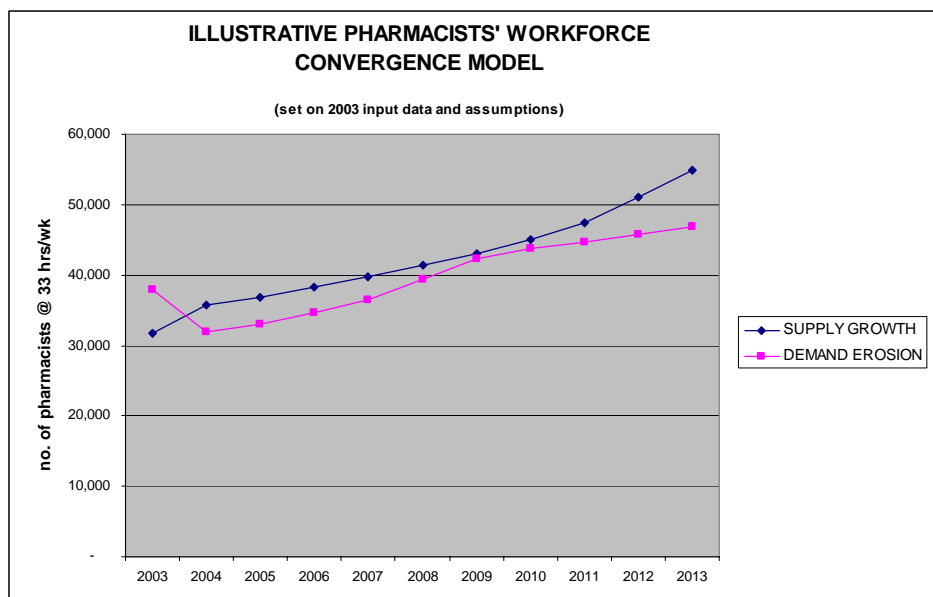
- Increase by doubling the rate of those on maternity leave and illness returning to the system to reflect positive returners’ campaigns;
- increase the number of overseas pharmacists by 1% per year to reflect positive recruitment campaigns and induction programmes;
- increase the undergraduate and pre-registration student “pipeline” yield rates to 95% and 95% respectively to reflect better teaching and supervision methods, and better grounding in the profession⁸;

⁸ This combination of demand and supply changes looks incompatible but it is feasible that academic staff are improving their teaching and supervision methods as the Teaching Quality Assessment exercises make progress, and at the same time, academic pharmacists are supplemented by more non-pharmacist academics and Teacher Practitioners who contribute their time as “goodwill” or at marginal rates from their employers in the other sectors.

⁹ We now know at March 2006 that 5 new schools have got started, and possibly another 3-5 will get going within the model’s horizon period set at 2013. The first out-turn from this expansion will be in 2008 (1 school); 2009 (2 schools); 2010 (2 schools); and possibly there might be a yield from 1-2 schools in each of the years 2011, 2012 & 2013 if they get their accreditation and can recruit staff and students. Therefore this original proposed reduction in demand for academic pharmacists is now incorrect and understates the model’s demand estimates. However, although this has a potentially big impact on academic pharmacy, it has a marginal impact on the whole system up to the horizon year at 2013 as academic pharmacy represents only 2.2% of the whole pharmacist workforce. However, these factors do have an impact beyond 2013 when the expanded system will be working at full capacity so the next revision cycle will take this into account.

- increase the number of students in training from 2006 by increasing the base line capacity of the existing Schools by an extra 10%¹⁰;
- freeze the “Shipman factor” as the government takes a more reflective and cautious approach to its risk management strategy so no change from the base case for a continuing professional development requirement.

10.3. The overall results of running the model using these assumptions about reduced demand for, and increased supply of pharmacists is illustrated below¹¹:



11. Conclusions

- The preliminary analysis based on existing trends highlights the size of the potential gap between the demand for and supply of pharmacists over the next ten years in the absence of significant changes.
- The illustrative use of the model to reduce demand and increase supply to move towards an equilibrium of demand and supply highlights the scale of the policy challenge.
- Both these illustrations present nationally aggregated data which can mask specific issues in particular sectors of pharmacy. The model can be used to explore each sector in more detail.

¹⁰ This combination of demand and supply changes looks incompatible as the proposed expansion of the numbers of undergraduate students in the training “pipeline” calls for an increase in the supply of academic pharmacists which is at odds with the proposed suppression of the academic pharmacists’ demand-side parameters. However, it is feasible to make this proposition if you accept in principle the arguments outlined in footnote 8 above regarding the increased use of non-pharmacist academics and Teacher Practitioners from the other employment sectors. Accepting these original demand-side modelling parameters are now incorrect, see footnote 9 above, this combination of changes will be re-estimated on the next revision cycle in the light of both the actual expansion rate in the Schools and their student and staff numbers, and the current detailed analysis and review of the future pharmacist and non-pharmacist academic workforce which aims to identify the potential risks in the supply-side system.

¹¹ NB: under the conditions of an increased undergraduate output based on the possibility of the current 5 new accredited Schools working to maximum capacity within 5 years and an extra 9 new Schools coming on stream during the life of the model, supply greatly exceeds demand under the parameters above, especially after 2013.

- A preliminary analysis of the different sectors indicates that the area most at risk to long-term shortages is likely to be the community sector, particularly where it is served by larger organizations.
- The expansion of the whole workforce is particularly vulnerable to the state of the academic workforce which is needed to support the rapidly expanding student numbers in the training “pipeline”.
- The potential for the analysis of specific sectors should not hide the inter-dependence of the sectors. For example the NHS hospitals and primary care services have potential long-term shortages if the problems in the community pharmacy workforce are not addressed as the analysis has shown that the demand for pharmacists in the NHS is sensitive to the ability of the community pharmacy service to meet the increasing needs of the elderly under the terms of the new GMS and pharmacy contracts.
- The shortfall in supply could be greatly reduced if average working hours were increased. However the attitude survey data has indicated that the preference and pressure is towards a further reduction in hours.

12. Policy Implications

The evidence suggests that on current trends, demand for pharmacists’ services will grow more rapidly than supply over the next decade. The workforce planning model highlights the implications of altering aspects of supply and demand. The detailed analysis provided by this model and presented in the body of the report repays close attention. The challenge is to identify those policies that in the short, medium and long-term will lead to a better balance between supply and demand.

In broad terms, the main policy options are:

- To increase supply through, for example, expanding university places, opening up new routes to qualification, encouraging more immigration and encouraging a return to the profession of qualified pharmacists not currently working in pharmacy.
- To reduce dependence on pharmacists through, for example, making more standard medicines available over the counter or extending the period of prescriptions and/or the period of the repeat cycle of prescriptions so that standard packaging can be developed (though both of these are complex to enact).
- To re-allocate roles through, for example, a combination of a greater use of skill-mix and investment in technology, thereby freeing up pharmacists’ time.

Policy recommendations need to take into account, in particular, the shifting make-up of the pharmacy workforce with its growing proportion of women and ethnic minorities as well as more general changes in attitudes to work and to careers among pharmacists and in society more generally.

The Members of the Advisory Group @ January 2003

