AUGUST 2003

Technical & Scientific Review

Workforce Planning Review

Department of Health, Social Services and Public Safety
An Roinn Sláinte, Serbhísí Sóisialta agus Sábháilteachta Poiblí

Introduction

The Technical and Scientific staff groups include Clinical Scientists, Medical Laboratory Scientific Officers, Medical Laboratory Assistants, Cytoscreeners, Medical Technical Officers and Assistant Technical Officers. They work together as part of a clinical diagnostics team, delivering a service to both primary and secondary care, across wide geographical locations within the healthcare setting.

Clinical Scientists (CS) provide clinical interpretation of scientific data and advise on the diagnosis of disease and monitoring of treatment. They are involved in evaluation, research and development of investigative systems and set and monitor quality standards.

Medical Laboratory Scientific Officers (MLSOs) are biomedical scientists who work in clinical laboratories carrying out scientific analysis of samples to provide clinical diagnostic results, so that pathologists and clinicians can diagnose disease, decide on the best form of treatment and monitor its effectiveness. They include a wide group of disciplines, which includes cytopathology, haematology, histopathology, microbiology, immunology, clinical chemistry, medical genetics, tissue typing and transfusion science.

Medical Laboratory Assistants (MLAs) carry out a range of functions in laboratories assisting MLSOs, with preparation of test media, making up and sterilising chemical solutions, plating samples, separating blood serum and plasma and patient identification entry.

Cytoscreeners check for early signs of cellular abnormality in women by examining cervical smears under the microscope and producing a clinical report.

Medical Technical Officers and Assistant Technical Officers (MTOs/ATOs) provide support to in a range of clinical and non-clinical areas, such as audiology, cardiology, radiology, renal medicine, mortuary services and medical photography, in which they maintain and operate equipment used in the diagnosis and treatment of patients.

This document is a summary of the Comprehensive Review of the Technical and Scientific Workforce (September 2001). The review was co-ordinated by a Project Steering Group and sub-groups comprising of representatives of the DHSSPS, providers, education, staff side and commissioners. The report includes a profile of the workforce, a projection of the supply and demand within the HPSS workforce over the 5-year period 2002-2006, and recommendations to address issues arising from the review. This information will assist the Department primarily in developing strategies that will ensure that the correct numbers of professionals are trained, in place and working effectively to offer the maximum benefit to patients and clients.

Methodology

A variety of methods were utilised to undertake this Review:

- An audit to identify the staffing profile and characteristics of the current workforce, primarily gathered from existing information held at the Department and Trust level on the Human Resource Management Information Systems and supplemented by data from respective professional bodies.
- A background research was conducted involving a literature review; policy document review; a review of Trust and Commissioner strategies to identify proposed capital and service developments and or changes.
- Consultation with stakeholders across all relevant disciplines of the workforce involving Key Informant interviews and Focus Groups.
- Analysis of the data gathered to develop a workforce model to aid the prediction of future workforce needs by the identification of key supply and demand indicators over the period of 2002-2006.

Due to the diverse nature of the staff groups under review the Steering Group broke in to three sub-groups for much of the detailed work, these being:

- Clinical Scientists;
- Medical Laboratory Scientific Officers, Medical Laboratory Assistants and Cytoscreeners;
- Medical Technical Officers and Assistant Technical Officers.

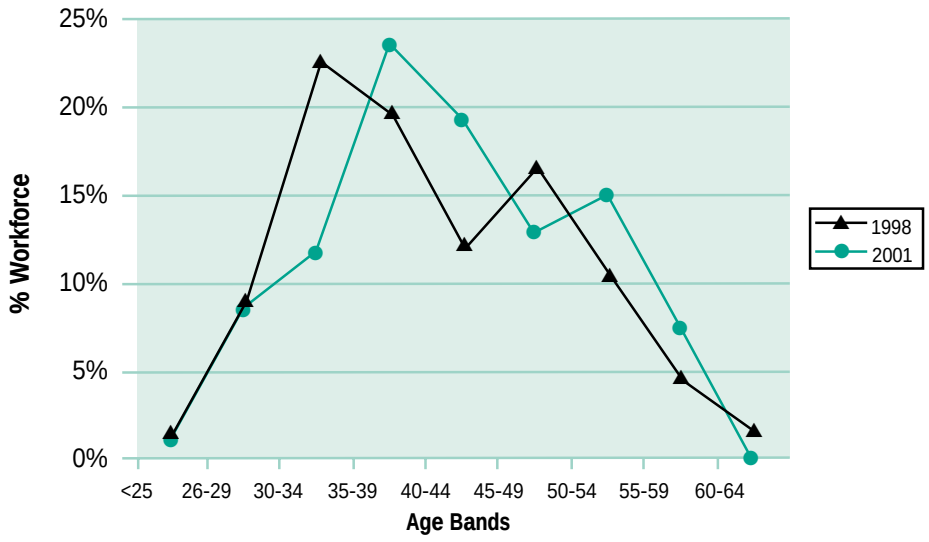
Key Findings of The Review

Staffing Profiles

Clinical Scientist Workforce

- There were 93 Clinical Scientists working in both laboratories and medical physics.
- 23% of staff was over 50 years of age.
- 19% of staff were between 40-44 years.
- 60% of the group were male and 40% female.
- Only 10% work on a part-time basis and all of these were female.
- There were 3 vacancies within the workforce.

Graph: Age Profile of Clinical Scientists comparing 1998 and 2001
Source : Human Resource Management System

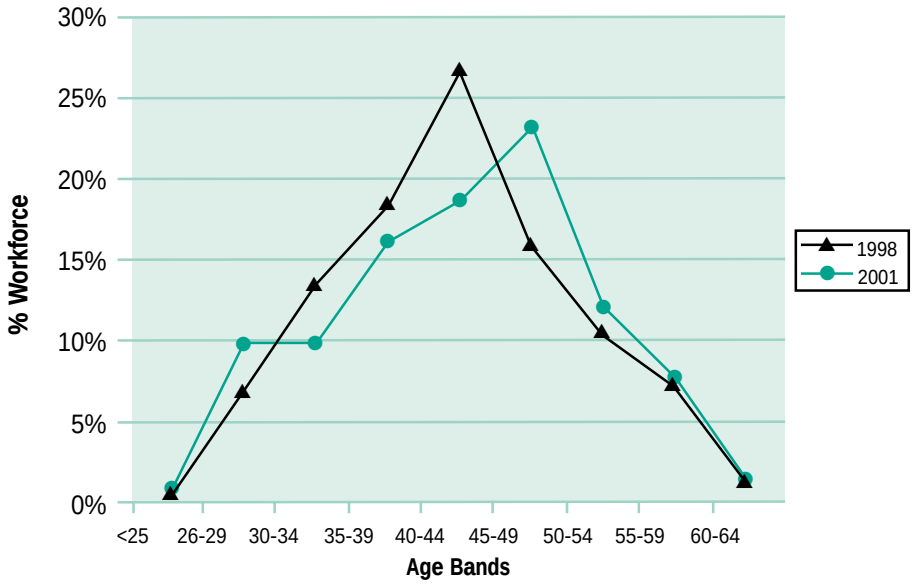


Medical Laboratory Scientific Officer Workforce

- There were 545 MLSO's in the workforce, an increase of 7% over the previous four years.
- The majority (78%) of MLOS's were grades 1 and 2.
- The MLSO modal age was 45-49 years.
- There was a 5% increase over the previous four years in the number of female staff, to 52% of the total MLSO workforce.
- 60% of the MLSO 1 grade were female.
- At the MLSO 4 grade only 12% were female.
- 14% of MLSO staff worked in a part-time capacity.
- There were 55 trainee MSLO of which 73% were female.
- The vacancy rate was 4%.

Graph: Age Profile of MLSO Workforce comparing 1998 and 2001

Source : Human Resource Management System



Medical Laboratory Assistant Workforce

- There were 118 MLA staff, an increase of 19% over the previous four years.
- 42% of MLA's were under 25, and 67% under 30.
- The MLA group was predominantly female (62%).
- Only 9% of MLAs work part-time.
- The vacancy rate was 4%

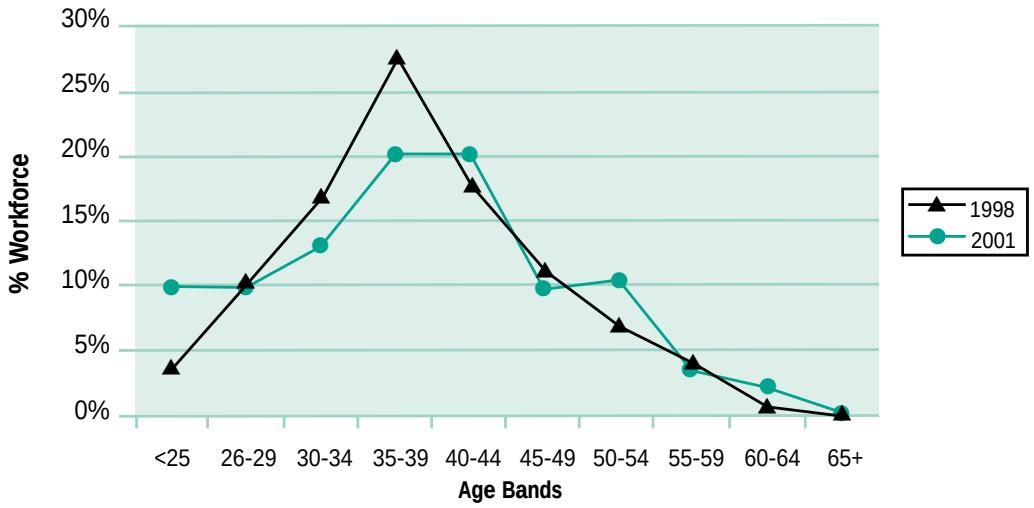
Cytoscreener Workforce

- There were 7 Cytoscreeners

Medical Technical Officers and Assistant Technical Officers

- There were 306 MTOs at September 2001 (a growth of 10% over the previous four years).
- There were 12 trainee MTOs.
- There were 51 ATOs.
- An increasing number of staff were under 25, with a modal age of 35-39.

Graph: Age Profile of the MTO Workforce comparing 1998 and 2001
Source : Human Resource Management System



- 58% were female.
- MTO vacancy rate was 5% (HPSS), and 21% (Regional Medical Physics Agency RMPA).
- The vacancy rate was 5%.
- 17% of MTOs were working part-time.

Supply and Demand Issues

Supply Issues

The following issues were identified as affecting the workforce supply over the 5-year workforce plan: -

Clinical Scientists

- The primary concern for laboratory Clinical Scientists was the potential number of retirements anticipated in the next ten years (23% of staff if retirement is at 60 years).
- It takes 8-10 years in training for clinical scientist grade and therefore succession planning is imperative.
- The RMPA has had significant difficulty in recruiting Grade B Clinical Scientists, particularly in radio-diagnostic-physics.
- There were shortages noted of staff at Grade B Clinical Scientists nationally.
- The Department currently funds four trainee Grade A Clinical Scientist posts in the RMPA and three in the HPSS (Biochemistry Services).
- Leaver analysis indicated 4% of CS staff were leaving the HPSS for reasons other than retirement.

Medical Laboratory Scientific Officers

- A major concern expressed by all grades of MLSOs was the lack of bursary support available to students in their clinical placement year.
- Concern was noted of the lack of good structured training within Trusts often due to difficulties experienced with increasing service demands.
- Starting salaries for graduates were not seen as attractive.
- There was a lack of career progression, resulting in staff remaining on the same grade for many years.
- The demands for the provision of out of hours services, coupled with the difficulties of meeting the Working Time Directive with limited staff were indicated as causing considerable work pressures.
- An increasing percentage of females were entering the workforce and as a result an increase in requests for family-friendly working practices has been noted.
- Pressure was noted at the top grades of MLSO staff as a result of shortages in consultant (medical) laboratory staff.
- Leaver analysis indicated that 3% of MSLO staff leaving the HPSS were for reasons other than retirement.

Medical Laboratory Assistants

- There was a very high turnover in MLAs (in 2001, 42 staff left, which represented approximately 24% of the staff group).
- Difficulties were noted in recruiting MLA staff partly due to the low levels of pay and lack of a career structure.
- Leaver analysis indicated 29% of MLA staff were leaving the HPSS for reasons other than retirement.

Cytoscreeners

- A primary concern for the cytoscreener workforce was the timescale for training.
- There was a lack of succession planning to ensure trained staff will be available for the future.

Medical Technical Officers

- The lack of bursary assistance during the Clinical Physiology degree course and placement year made it less attractive than other clinical courses.
- There were low levels of starting pay for graduates, which increases the difficulty in attracting new staff to the profession.
- There were difficulties providing relevant education modules for the degree course due to the small numbers in training.
- Staff remain on the same grade for considerable periods of time due to a lack of career path.
- There was a limited ability to provide family friendly policies as well as maintaining service provision.
- The Regional Medical Physics Agency noted difficulties recruiting and retaining MTO staff mainly due to the lack of a structured education and training programme, and low levels of pay.
- Leaver analysis indicated 1.5% of MTO staff were leaving the HPSS for reasons other than retirement.

Common to all staff groups, except perhaps Clinical Scientists, was the view that their roles had a very low profile, both within the service and externally. Concern was also expressed that within Trusts the workload of these groups of staff was not fully recognised when appointing new Consultant staff or the expansion of clinical services.

Demand Issues

The following issues were identified as the demands on Laboratory Services for CS, MLSO's, MLA's and Cytoscreeners: -

- Recent data demonstrated that laboratories have consistently seen an increase in the volume of tests (average, 6-7% per annum).
- There has been an increase in the complexity of tests and pressure to decrease turnaround times.
- An increasing requirement for laboratories to achieve and maintain Clinical Pathology Accreditation.
- Workload has increased due to clinical governance, waste disposal regulations, infection control requirements, clinical audit and blood safety issues.
- An increase in workload in the out of hours services has result in staff being required to work continuously throughout their duty periods.
- An increasing demand for staff to provide training officers for students on degree placements.
- Development of new areas of laboratory science, in the fields of genetics and molecular biology and increasing sub-specialisation pressurises the service.
- The development of near patient testing could potentially require significant input from laboratory staff.

Medical Technical Officers and Assistant Technical Officers

- Extension of roles into tasks previously delivered by doctors.
- Potential developments in the delivery of health care such as digital hearing aids and the National Strategic Framework for Cardiac Services.
- Changes to the working patterns and hours of delivery.
- The Working Time Directive has put significant pressures on services covered by a small number of staff.

Supply And Demand Projections

Conclusions were drawn and assumptions made concerning the future profile of the workforce utilising supply and demand projections. These have been developed into four workforce models to predict the requirements of the Technical and Scientific Workforce over the 5-year period 2002-06.

Demand projections were based on vacancies identified, workload projections, service expansions, the Working Time Directive and Continual Professional Development requirements over the 5-year plan. Supply projections were based on the forecasted number of retirements, service leavers, worklife balance loss and the number of graduating students.

The future profiles of these workforces were modelled using the above criteria.

Clinical Scientists

Supply and Demand Projections of the Clinical Scientist Workforce for the Period of 2002-2006

Supply & Demand	2002	2003	2004	2005	2006	Total
Supply						
Retirements	1	1	1	1	1	5
Other Leavers	4	4	4	4	4	20
Work life balance loss	1	1	1	1	1	5
Estimated Annual Turnover	***6***	***6***	***6***	***6***	***6***	***30***
Demand						
Current vacancies	2	1	0	0	0	3
Workload & Service Expansion	3	3	3	3	3	15
Total Demand	***5***	***4***	***3***	***3***	***3***	***18***
Projected requirements	**11**	**10**	**9**	**9**	**9**	**48**

The projected numbers of staff required for each year is indicated in the table and the supply of potential applicants for the laboratory posts is not considered to be a limiting factor but will be dependent on the funding available to increase the number of posts and the training provided. However, the availability of staff to fill RMPA posts is more of a concern.

MLSO Workforce

MLSO Workforce Projections for Period of 2002-2003 in Headcount
NB ( ) denotes shortfall

Supply and Demand	2002	2003	2004	2005	2006	Total
Supply: - Graduates	*31*	*31*	*31*	*31*	*31*	*155*
Loss due to: - Retirements	7	11	11	11	11	**51**
- Other Leavers	18	18	18	18	18	**90**
- Worklife Balance	9	9	9	9	9	**45**
Total Loss	***34***	***38***	***38***	***38***	***38***	***186***
Net Supply	***(3)***	***(7)***	***(7)***	***(7)***	***(7)***	***(31)***
Demand						
Current vacancies	11	11	0	0	0	**22**
Workload & Service Projections	6	8	9	11	12	**46**
Working Time Directive	30	30	0	0	0	**60**
CPD	12	0	0	0	0	**12**
Total Demand	***59***	***49***	***9***	***11***	***12***	***140***
Projected workforce, over(under)	**(62)**	**(56)**	**(16)**	**(18)**	**(19)**	**(171)**

In terms of meeting the net estimated demand over the five years (171 posts) there is scope to increase the proportion of graduates from the University of Ulster Biomedical Science BSc and MSc degree courses entering the HPSS. Only around 20% of those currently graduating take employment in the HPSS. Addressing the supply issues has potential to increase the student numbers entering the workforce. The proportion of graduates from the Biomedical Science BSc entering HPSS employment would need to increase to 50% to meet the current vacancies for year 1 and 2 of the projections. This would equate to an estimated 11 more new entrants to the profession per year - 55 in total. Further increases to the proportion of students entering HPSS employment could contribute to meeting the additional potential demand identified.

MLA Workforce

Supply and Demand Projections for the Period 2002-2006 in Headcount
NB () denotes shortfall

Supply and Demand	2002	2003	2004	2005	2006	Total
Supply						
Retirements	1	1	1	1	1	5
Other Leavers	34	34	34	34	34	170
Worklife balance loss	1	1	1	1	1	5
Estimated Annual Turnover	***36***	***36***	***36***	***36***	***36***	***180***
Demand						
Current vacancies	2	2	0	0	0	4
Workload & Service Projections	1	1	2	2	2	8
Total Demand	***3***	***3***	***2***	***2***	***2***	***12***
Projected workforce numbers	**(39)**	**(39)**	**(38)**	**(38)**	**(38)**	**(192)**

Retention is a particular problem for the MLA workforce resulting in much higher rate of staff leaving health service employment than for any other technical and scientific group. There is considerable effort and cost associated with the ongoing recruitment required at this grade, therefore, it is important that the service develops ways of improving retention.

MTO Workforce

Supply and Demand Projections for the Period 2002-2006 in Headcount

Supply and Demand	2002	2003	2004	2005	2006	Total
Supply						
Retirements	8	3	3	3	3	20
Other Leavers	5	5	5	5	5	25
Worklife balance loss	3	3	3	3	3	15
Estimated Annual Turnover	***16***	***11***	***11***	***11***	***11***	***60***
Demand						
Current vacancies	8	8	0	0	0	16
Workload & service expansion	6	6	7	8	9	36
Working Time Regulations	16	16	0	0	0	32
CPD	6	0	0	0	0	6
Total Demand	***36***	***30***	***7***	***8***	***9***	***90***
Projected workforce requirements	**52**	**41**	**18**	**19**	**20**	**150**

It is clear that in some specialities there are not sufficient numbers of graduates at present to meet the projected demand. However, not all MTO staff require degree level entry qualifications. Further work would be required on a speciality basis to determine a more accurate breakdown of needs and shortages.

Recommendations

The following recommendations were made from both the qualitative analysis and the detailed data modelling:

- The Department and the Service should explore alternative strategies and measures for the delivery of Laboratory Services. The projected shortfall in MLSO staff is a serious concern due to the very limited number of students currently studying for relevant degrees, and the ability to attract these students in to the HPSS. It is evident that in the next five years, these staffing gaps will not be able to be filled by graduates alone even if significantly more were attracted into HPSS.

- The Department should consider the potential for establishing financial assistance to students undertaking the Biomedical Science degree to encourage science students to undertake their placement year in the HPSS.

- The implementation of the extension of the Biomedical Scientist grade in cytology should be reviewed to assess the appropriateness of extending the grade in other specialties, to help address pressures in laboratories resulting from a shortage of medical staff.

- Reducing the timescales for training required by new Biomedical Science graduates prior to State Registration should assist in the recruitment of new appropriately qualified staff to the profession. The Diploma in Professional Practice (pathology) pilot should be evaluated and modified if necessary to ensure its ready adoption on a wider scale within Northern Ireland.

- Work should be carried out to review the skill mix required and the potential to develop some form of career structure for MLAs that includes CPD and the potential to progress to MLSO grades.

- Trusts should review the potential within their organisations to fast-track staff from MLSO1 to MLSO2 grade.

- The reasons for the currently low proportion of women at the more senior MLSO grades, in comparison with other clinical professions, should be investigated and methods identified to address the gap.

- The Department should review the potential for increasing the number of trainee Cytoscreeners over the next five years to ensure qualified staff are available to fill vacancies, which will arise due to retirements.

- The modelling of the MTO workforce has demonstrated a potential shortfall in available staff over the next five years. A significant element of this relates to specialties such as Cardiology where there is a shortage of students graduating with relevant grades. Therefore work should be carried out between the University of Ulster and the service to review the delivery of the Clinical Physiology Degree to increase the flexibility of its approach and therefore the specialties that it can support. This should help to determine ways in which small numbers of staff for specialist areas can receive the relevant training and qualifications, whilst recognising that the numbers required each year will fluctuate.

- Clinical Scientists recruitment (for laboratory staff) is not a major concern, but a number of staff are due to retire in the next five to ten years and the service should be planning for this is requirement now.

- Current national shortages for CS staff for the Regional Medical Physics Agency are a concern and recruitment and retention strategies to overcome these difficulties should be explored.

- The Department and the RMPA should review the potential for further developing training schemes in the agency to help overcome recruitment problems and increase the potential to develop expertise within Northern Ireland.

- In order to ensure that suitably qualified Clinical Scientist staff will be available in the future, the Department should review the training currently funded for Grade A Clinical Scientists and to extend

it, where necessary, across the laboratory specialties. It should be targeted to specialties of greatest need, based on an annual review of future staffing shortages and succession planning for retirements.

- The development of an integrated IT strategy and system would significantly assist laboratories in the management of their workload and would need to play a key role in any redeveloped service model.

- Common approaches to equipment purchase would enable easier movement of staff without requiring additional training.

- Networking arrangements across the province should be encouraged to alleviate the most severe pressures.

- Further work is required to determine the MTO workforce needs for each specialty area.

- Work should be carried out to review current recruitment practices in the service. The aim should be to increase the profile of roles carried out by the Technical and Scientific staff groups and increase public awareness, particularly amongst school leavers, in order to attract a greater proportion in to relevant further educations courses.

- A benchmarking exercise should be carried out to regionally set benchmarked norms for workload across the province based on volumes, complexity, training obligations etc to further assist in assessing staff numbers required. This would assist in determining detailed workforce planning and aid decisions with regards to priorities for future resource investment. It would also provide a useful tool for assessing, for example, potential service reconfigurations. This recommendation echoes that of the NI Assembly Public Accounts Committee following its review of Pathology Laboratories (reference 06/01/R).

- Work is required to quantify the financial impact of the increasing requirements for training, including the appointment of training officers, and the impact of proposed requirements for CPD for those staff groups where such formal training programmes do not currently exist.

- It would be beneficial to standardise the classification of staff on the payroll system to enable valid comparisons of staffing levels to be made between organisations in the future.

- Urgent work is required to assess the workforce needs to implement the Working Time Directive regionally.

- A clear strategy for the future structure of laboratory services in Northern Ireland is required.

Conclusion

In conclusion, it must be emphasised that this review provides only a baseline from which an action plan must be developed to enable the development and implementation of the recommendations outlined. In addition, the workforce data and projections presented must be subject to regular review and updating as further and more up to date information becomes available. By actively reviewing the workforce-planning model, a mechanism exists to inform strategic decision making about the Technical and Scientific Workforce within the HPSS for the future.

Workforce Planning Review

AUGUST 2003

Technical & Scientific Review

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