Determining Skill Mix: Practical Guidelines for Managers and Health Professionals

James Buchan, MA (hons) Ph.D., D.P.M.
Fiona O'May, B.Sc., M.Sc.
Queen Margaret University College, Edinburgh, United Kingdom

Abstract

This paper provides practical guidelines for managers and health professionals looking to skill mix as a potential solution to health service delivery problems. These guidelines emphasise the need to evaluate the problem, and examine the context, before deciding if skill mix is the answer. The guidelines are provided in the knowledge that skill mix is rarely examined in a "pure" theoretical sense by organisations. They have to adopt a pragmatic approach which takes account of the day-to-day realities of their priorities and resources.

The paper argues that changing skill mix is not a panacea for all the ills of an organisation. It has a role to play in improving organisational effectiveness and quality of care, but it must be recognised for what it is - a process for achieving change. Four phases of the skill mix cycle are described: evaluating the need for change; identifying the opportunities and barriers for change; planning for change; and making change happen. The paper concludes by emphasising that skill mix is not just a technical exercise. It is a method of achieving organisational change which requires careful planning, communication, implementation and evaluation if it is to achieve its objectives.

Key words: skill mix, personnel mix, organisational change.

Introduction

This paper provides a decision support tool for managers and health professionals interested or involved in skill mix. It builds on the work already undertaken for the WHO in this area, which developed a typology of approaches to skill mix [1,2] and more recent work which examined the application of skill mix in context [3]. The paper examines the context in which decisions on skill mix are made and provides practical guidelines for health professionals and managers.

Many health systems around the world are coming under scrutiny for cost containment and quality improvement, often as a direct or indirect result of health sector reform. Health care is labour intensive, and the cost of labour accounts for a high proportion of total costs (often 75% or more). Managers and health professionals are thus striving to identify the most effective skill mix of staff achievable within available resources [4-7].

In practice there is a great deal of variation in what is meant by 'skill mix' or 'personnel mix'. The term 'skill mix' can refer to the mix of posts in the establishment; the mix of employees in a post; the combination of skills available at a specific time; or the combinations of activities that comprise each role, (rather than the combination of different job titles). Mix can be examined within occupational groups, or across different groups, such as nurses and doctors, or between different sectors of the health system [8-10].

Skill Mix in Practice

This section provides guidelines for health professionals and managers who are considering a skill mix review. There are four stages in the guidelines, each prompted by a question:

1. If skill mix is the answer, what is the question?

There is a need to first define your current services and identify the problem(s) for which skill mix appears to be the solution. In practice, there may be other more appropriate methods of dealing with the problem(s). Stage 1, therefore, is about **evaluating the need for change**.

2. What is my span of control?

When weighing the options for selecting an approach to skill mix, or deciding that other methods are more appropriate, managers and health professionals need to assess the impact of contextual constraints on their capacity to act. Stage 2 is therefore about mapping the contextual constraints on autonomy and flexibility and **identifying the opportunities and barriers for change.**
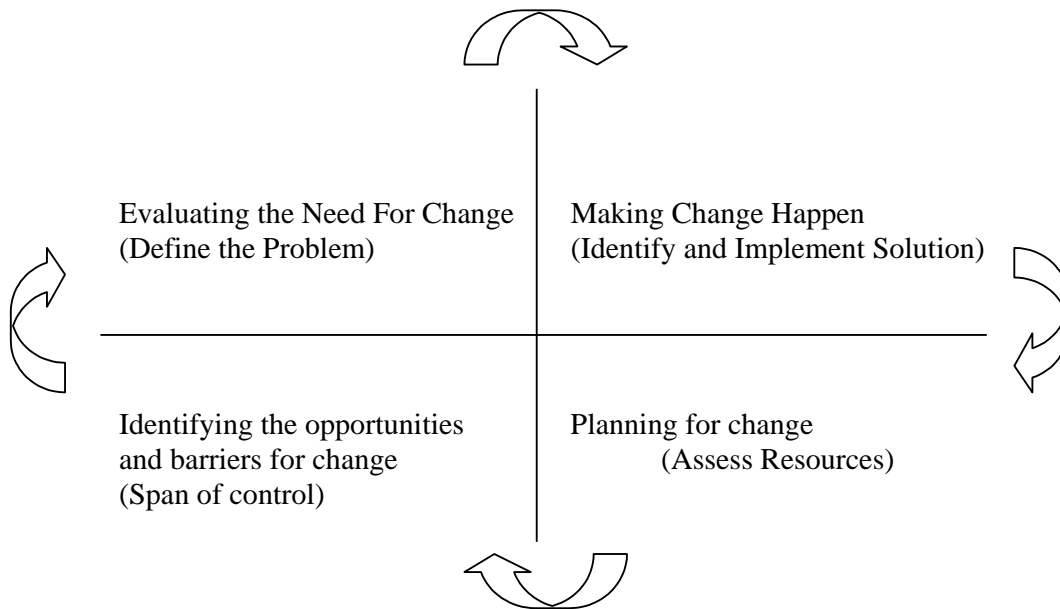
3. What resources are available?

The implementation of a skill mix exercise will depend on the availability of organisational resources, in terms of knowledge of approaches, technical support, data availability, information systems, staff resources, etc. There is no point in identifying an approach to skill mix which is resource intensive, if the resources are not available to support and sustain implementation. These resources will have to cover the direct and indirect costs of skill mix changes, including staff training and redeployment. Stage 3 is therefore about assessing resource availability and **planning for change**.

4. Which approaches to skill mix can be implemented?

Some approaches to skill mix can lead to immediate or short term change. Others will require months or years to implement fully. The approach identified for implementation must have the potential to deliver change within the required timescale. Stage 4 is therefore about identifying and implementing an appropriate approach to skill mix, and **making change happen**. This in turn leads back to stage 1, and evaluating the impact of the new skill mix.

Figure 1 illustrates the four stages in the cycle. A skill mix exercise should not be regarded as a "one off" isolated event; there should be a regular process of evaluation to monitor impact. The four stages of the skill mix cycle are discussed in greater detail below:

Figure 1: The skill mix cycle

Evaluating the Need For Change (Define the Problem)	Making Change Happen (Identify and Implement Solution)
Identifying the opportunities and barriers for change (Span of control)	Planning for change (Assess Resources)

Source: Buchan J, et al., 2000.

1. **Evaluating the Problem**

Firstly, there is a need to define the current services, in terms of activities, staffing configuration, etc. In order to be sure of the direction of change, you need to be clear about your starting point. You also need to be able to evaluate the effects of changing skill mix, and this requires baseline indicators. Some of the factors to consider:

- needs of patients/client groups
- current service provision-activity levels; bed occupancy, etc.
- staff involved; numbers, mix; deployment patterns; staffing indicators (turnover, absence, etc.)
- activities performed/roles
- quality of care provided
- outcome indicators

Secondly, the "problems" that may be solved by skill mix changes need to be assessed. Can these problems be solved, and is skill mix the best solution?

Table 1 outlines the "presenting" problems which may trigger the need to evaluate skill mix. It also highlights the possible focus of skill mix activity. A series of questions have to be answered, in deciding if skill mix is the answer to the problem(s):

- What is causing the problem? Are there underlying factors that are the root cause? For example, if the problem appears to be unnecessary overlap between different professions or groups it may be necessary to focus on roles and role definition.
- What makes you think that there is anything wrong with the current staff and skill mix? For example, if the presenting problem appears to be "understaffing", it will be necessary to assess workload in order to determine if staffing is too low.

- Have you considered alternative solutions, such as new working patterns, altering resource allocation, etc.?

Table 1 Types of problem and associated focus of skill-mix reviews

Presenting problem	Possible focus
1. Staff shortages	Roles
	Activities
2. 'Inappropriate' use of skills	Role overlap
	Activities
3. Value for money/cost containment	Depends on specific context
4. Quality/outcomes problem	Depends on specific context
5. Under staffing	Workload measures
6. New approach/ideology	Roles
	Patient dependencies
7. Staffing Inequities	Workload/activity
	Patient dependencies
8. Changing case mix/patient dependencies	Patient dependencies
	Patient classification
9. Establishing a new service	Ratios/norms
10. Changing roles	Activity analysis, Role redesign
11. Service Changes	Depends on specific context
12. New processes/procedure	Roles

Source: Buchan J et al., 2000

2. **Assessing Span of Control**

An approach to skill mix may be the ideal solution, but it may not be achievable in practice, because of contextual constraints. You must assess your span of control, to identify the best achievable solutions. The checklist highlights possible constraints, which are discussed in more detail below.

Span of Control Checklist
- **national pay structure**
- **staffing norms/staffing ratios**
- **employment regulation – civil service/public sector fixed allocation of jobs**
- **regulation/credentialling of health workers**
- **autonomy of education sector**
- **accreditation of organisations**
- **external control of budgets**
- **public/private mix of provision**
- **labour market factors (relative pay, job protection, etc)**
- **general economic situation**
- **societal/cultural values**

In assessing your span of control, use the checklist as a prompt, to map out the constraints on local autonomy to implement changes in skill mix. Consider the following:
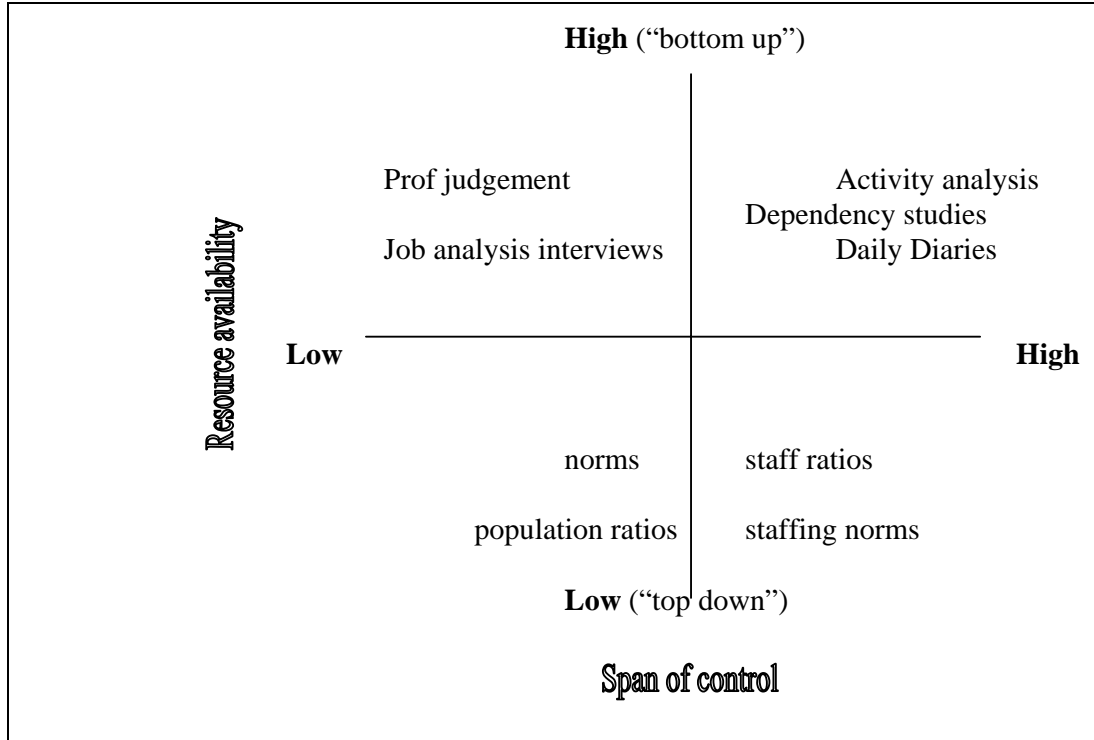
- What are the financial, resource, legislative and regulatory constraints arising from the context in which your organisation is operating? How do these constraints limit your span of control in implementing skill mix changes and other staffing solutions?
- Which staff groups and work areas do you have responsibility for, and in which of these do you believe there is the potential to implement skill mix changes and/or other solutions?
- What changes can you actually make, in practice:
  - change mix of posts?
  - change staff deployment across units/areas?
  - change roles of current individual staff or staff groups?
  - change mix by introducing new roles/staff groups?
- Where can you exert most influence; where are the "levers" for change?

3. **What Resources do you have Available?**

Before choosing an approach to skill mix, you must assess the resources that you have available to support implementation and evaluation. Different approaches require different levels and types of resources, in terms of staff time, skills and training; information technology; data generation and analysis; technical support; and management resources.

Some approaches to skill mix are relatively resource intensive, while others make little additional demands on resources. Some require short-term "up front" resources, as opposed to others with longer term resource implications. Span of control, and resource availability will, in combination, play a major role in determining which approaches to skill mix are feasible. Some systems can be characterised as relatively rigid, with central control over resource allocation and planning and with little or no discretion for local variation in approach ("top down"). Others are based on a more decentralised approach, where planning mechanisms are developed on the basis of identification of local priorities ("bottom up") (see Figure 2):

Figure 2 Span of control and resource availability as determinants of approach to skill mix

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                    High ("bottom up")
                          |
                          |
       Prof judgement     |        Activity analysis
                          |        Dependency studies
       Job analysis interviews     Daily Diaries
                          |
  Low _____|_____ High
                          |
                          |
              norms       |     staff ratios
                          |
         population ratios |     staffing norms
                          |
                    Low ("top down")

                    Span of control
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(y-axis label: Resource availability)

Source: Buchan, et al., 2000.

- What costing and activity data is routinely collected, or available?
- What information technology and analytical skills can be made available?
- Can/should external consultants and technical support be made available?
- Can staff be trained and given the time off work to participate in working groups/data generation/data analysis?
- Can all the direct and indirect costs be met – including any retraining and redeployment?
- Is there a "business case" for doing the skill mix review - can the resource expenditure be justified?

4. **Implementation**

Selection and implementation of an approach to skill mix will be influenced by the time horizon for change, and the desired coverage of the exercise - will it cover one unit, or a whole organisation? Will it cover one staff group, or many? What is the likely level of consumer acceptance? What are the power relationships between different stakeholders in the proposed change?

Table 2 sets out the likely timescale and requirements for eight main approaches to skill mix. In making decisions on which approach best matches requirements and available resources, it is important to restate that rarely is one of the eight approaches selected and implemented in isolation (see Buchan, 1999, for a more detailed discussion of these eight approaches).

Table 2 Resource and timescale implications of different methodological approaches.

Approach	Resource Implications	Data Requirements	Likely Timescale of Implementation
Task Analysis	Data generation Training observers Analysis of data Staff working group	Significant, generated by the exercise	"One off" or regularly repeated. Mid-long term change
Activity Analysis/Activity Sampling	Data generation Training observers Analysis of data Staff working group	Significant, generated by the exercise	"One off" or regularly repeated. Mid-long term change
"Daily Diary"/Self Recording	Data generation Analysis of data Staff working group	Significant, generated by the exercise	"One off" or regularly repeated. Mid-long term change
Case Mix/Patient Dependency	Data generation/data entry Analysis of data Information systems	Significant and continuous (I.T. required?)	Regular process of adjustment
Zero Base Reprofiling/ Re-engineering	"Diagnostic" data External consultants Staff working group	Significant in diagnostic phase	"One off" fundamental restructuring
Professional Judgement	Limited	Limited	Continuous process of adjustment/refinement
Job Analysis Interviews/Role Reviews	Trained interviewers	Generated by interviews	"One off" leading to short-mid term change
Group Discussion/"Brainstorming"	Staff time Skilled facilitation	Limited	"One off" occasional or regular, leading to short-mid term change

Source: Buchan J et al., 2000.

A skill mix review will usually make at least some use of professional judgement and group discussions in scoping the need for change. The question will then be to determine in detail which approach or approaches to skill mix will be most effective and achievable in the specific circumstances. Available resources and time scale are two factors to be considered. Whichever approach(es) is chosen to use, the following checklist will assist in implementation (see Table 3 and details below):

Table 3 Implementation Checklist

- **work to achieve staff ownership**
- **define the organisational "boundaries" of the approach**
- **develop and agree on a timed action plan**
- **develop and agree on an associated communication strategy**
- **determine what will be the information requirements**
- **undertake an analysis of existing information**
- **move forward with implementing the new skill mix**
- **evaluate implementation**

- **Staff ownership**.

Have you ensured that staff are involved in the process of change? Do they know the reasons for undertaking the skill mix exercise?
- **Defined boundaries.**

Have you delineated clearly the "boundaries" of the skill mix exercise, in terms of work areas, units and staff groups? Boundaries should be determined primarily by the services provided.
- **Action plan.**

Have you an agreed action plan, which sets out objectives, responsibilities, timing, and key "milestones"?
- **Communications strategy.**

Have you devised a strategy for communicating with users of the service and staff, to explain the implications of the skill mix review and related changes?
- **Information requirements.**

Which of the following types of information do you have/do you need?
- needs of client groups/users
- current activity levels (bed occupancy, no. of treatments, etc.)
- patient dependencies/workload assessments
- staffing numbers, deployment, costs
- staffing activities, roles
- quality of care indicators
- outcome measures
- **Analysis of Information**

How will information be analysed and interpreted, and by whom? How will you ensure that professional judgement and staff "ownership" is supported in this process?
- **Implementing the new skill mix**

How will you support implementation of the new mix? Have you taken account of shift patterns and rostering, time off for training, sickness absence levels, etc.? Will "natural wastage" be used to determine the timescale for change in skill mix, or will you plan to redeploy or retrain any displaced staff?
- **Evaluating implementation**

What quality, cost and outcome indicators will you use to monitor and evaluate implementation? What is the appropriate timescale for evaluation, and what plans do

you have for regular reviews? You must close the skill mix cycle, by evaluating the impact of change, and deciding if further change is then required.

Conclusion

The aim of this paper has been to provide practical guidelines for managers and health professionals looking to skill mix as a potential solution to service problems. The guidelines have emphasised the need to evaluate the problem, and examine the context, before deciding if skill mix is the answer. It is also important to note that the guidelines are provided in the knowledge that skill mix is rarely examined in a "pure" theoretical sense by organisations. They have to adopt a pragmatic approach which takes account of the day-to-day realities of their priorities and resources.

Changing skill mix is not a panacea for all the ills of an organisation. It has a role to play in improving organisational effectiveness and quality of care, but it must be recognised for what it is - a process for achieving change. An organisation should not enter lightly in making changes in skill mix. It has to consider all four phases of the skill mix cycle:

- Evaluating the need for change
- Identifying the opportunities and barriers for change
- Planning for change
- Making change happen

Skill mix is not just a technical exercise. It is a method of achieving organisational change which requires planning, communication, implementation and evaluation if it is to achieve its objectives.

Acknowledgements:

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