The collaborative care model: realizing healthcare values and increasing responsiveness in the pharmacy workforce.

FORSYTH, P., RADLEY, A., RUSHWORTH, G.F., MARRA, F., ROBERTS, S., O'HARE, R., DUGGAN, C. and MAGUIRE, B.

2022

Title: The Collaborative Care Model: Realizing Healthcare Values and Increasing Responsiveness in the Pharmacy Workforce

Authors: Paul Forsyth[1], Andrew Radley[2], Gordon F Rushworth[3], Fiona Marra[4], Susan Roberts[5], Roisin O'Hare[6], Catherine Duggan[7], Barry Maguire[8]

Position, Institution, Telephone, Email Address and Contribution of Authors:

1. Paul Forsyth (PF), Lead Pharmacist Clinical Cardiology, Pharmacy Services, NHS Greater Glasgow & Clyde, Clarkston Court, 56 Busby Road, Glasgow G76 7AT, Scotland (telephone: 0141 201 6021 / email: paul.forsyth@ggc.scot.nhs.uk). ORCID ID 0000-0003-3804-6795. Contribution: Conceptualization; Model Curation; Model Theory; Model Visualization; Writing - original draft (lead author), Writing - review & editing (lead author).
2. Andrew Radley (AR), Consultant in Public Health Pharmacy, NHS Tayside (01382 425682 / andrew.radley@nhs.scot). ORCID 0000-0003-4772-2388. Contribution: Conceptualization; Model curation; Model Theory; Writing - review & editing.
3. Gordon Rushworth (GR), Programme Director, Highland Pharmacy Education & Research Centre, NHS Highland, Inverness, IV2 3UJ (gordon.rushworth@nhs.scot). ORCID 0000-0001-6085-6044. Contribution: Model curation; Writing - review & editing.
4. Fiona Marra (FM), National Lead Clinician Scottish Infection and Immunology Network (SPAIIN) / Advanced Pharmacist HCV / HIV, NHS Greater Glasgow & Clyde (fiona.marra@ggc.scot.nhs.uk). Contribution: Model curation; Writing - review & editing.
5. Susan Roberts (SR), Associate Postgraduate Pharmacy Dean, NHS Education for Scotland, 89 Hydepark Street Glasgow, G3 8BW (susan.roberts@nhs.scot). Contribution: Model curation; Writing - review & editing.
6. Roisin O'Hare (RO), Lead Teacher Practitioner Pharmacist, Northern Ireland University Network, Southern Health and Social Care Trust, Craigavon Area Hospital, Lurgan Road, Portadown, N Ireland, BT635QQ / Honorary Professor, School of Pharmacy, Queens

University Belfast, McClay Building, 97 Lisburn Road, Belfast, BT9 7BL (r.ohare@qub.ac.uk) ORCID ID: 0000-0001-9232-2266. Contribution: Model curation; Writing - review & editing.

7. Catherine Duggan (CD), Chief Executive Officer, International Pharmaceutical Federation (FIP), Andries Bickerweg 5, 2517 JP, The Hague, Netherlands (Catherine@fip.org). Contribution: Model curation; Writing - review & editing.
8. Barry Maguire (BM), Senior Lecturer, School of Philosophy, Psychology and Life Sciences, The University of Edinburgh, 40 George St, Edinburgh, EH8 9JX (barry.maguire@ed.ac.uk). Contribution: Conceptualization; Model Curation; Model Theory; Model Visualization; Supervision; Writing - original draft (senior academic supervisor), Writing - review & editing (senior academic supervisor).

Article Type: Proposed Model https://www.elsevier.com/journals/research-in-social-and-administrative-pharmacy/1551-7411/guide-for-authors

Word Limit: 7,095

Corresponding Author: Paul Forsyth, Lead Pharmacist Clinical Cardiology, Pharmacy Services, Clarkston Court, 56 Busby Road, Glasgow G76 7AT, Scotland (telephone: 0141 201 6021 / email: paul.forsyth@ggc.scot.nhs.uk).

Key Words: Pharmacists, Values, Professionalism, Workforce, Skills Development

Acknowledgements: We would like to thank the beautiful countryside of Driesh and Mayar (Glen Clova, Scotland) for allowing the tranquility necessary to conceptualize this work. We would also like to thank the 4th Year Philosophy students from Edinburgh University for debating an early version of this model during their seminar on community wealth building.

Funding: This proposed model paper received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors

Declaration of Interest: None

Abstract

Healthcare values are fairly ubiquitous across the globe, focusing on caring and respect, patient health, excellence in care delivery, and multi-stakeholder collaboration. Many individual pharmacists embrace these core values. But their ability to honor these values is significantly determined by the nature of the system they work in.

The paper starts by presenting the prevailing pharmacist workforce model in Scotland, in which core roles are typically separated into hierarchically disaggregated jobs focused on one professional 'pillar': Clinician /Practice Provider; Educator; Leader/Manager; and Researcher. This is the 'Atomistic' Model. This skills-segregation yields a workforce of individuals working in isolation rather than collaborating, lacking a shared purpose. Key strategic flaws include suboptimal responsiveness to population needs, inconsistency/inequity of care, erosion of professional agency, and lower job satisfaction. It is conjectured that this results from a lack of congruence between values, professional ethos, and organizational structure. 'Atomism' culminates in a syndrome of widespread professional-level cognitive dissonance.

The paper contrasts this with an emerging workforce vision, the Collaborative Care Model. This new model defines a systems-first-approach, built on the principle that all jobs must include all four professional 'pillars'. Vertical skills integration, involving education and task sharing, supports sustainability and succession planning. Horizontal skills integration (across practice, leadership/management, education and research) is included to improve responsiveness to population need and individual professional agency. The working conditions, supportive ethos, and career structure needed to make the model work are described. Moral and workforce theory are used to justify why the model may be more effective for population health, delivering greater job satisfaction for individuals and ultimately helping systematically realize healthcare values. Finally, the paper sketches the first steps needed to implement the model at the national level, starting with the operationalization of new multi-'pillar' professional curricula across the career spectrum. Potential challenges also are discussed.

Section One: Introduction

Values-based healthcare aims to achieve better and more just outcomes and experiences for the patient population and the workforce (1). The values of the healthcare sector are fairly ubiquitous across the globe, often including caring and respect, excellence and equality in care delivery, and multi-stakeholder collaboration (1) (2). The pharmacist profession, in Scotland, and in many countries around the world, holds similar values, aiming to improve the equitable access to safe and effective medicines, and "person-centered" care services, in collaboration with other healthcare professionals (3) (4) (5). While regions and nations across the globe differ in the ways in which services are accessed, delivered and remunerated, there is much to be learned and shared concerning professional values and ethos.

The World Health Organization (WHO) has identified a worldwide shortage in healthcare workers. This resulted in pharmacy responding with an assessment of the pharmacist workforce globally, to better plan, enable and support pharmacy to be part of the challenge and offer solutions (6) (7) (8). There is an acknowledged global need for pharmacists to be able to adapt and grow in knowledge and skills and respond to changing demography in a confident and competent way (9) (10) (11) (12). The concept of values-based healthcare and values-based pharmacy professionals is a key part of defining our place in society and our contribution to healthcare.

Many individual pharmacists embrace these core values: focusing on being patient-centered and professionally competent (13) (14), displaying honesty and leadership (14), whilst retaining integrity and good patient communication (13), with a sense of collective responsibility (15), and ultimately trying to deliver care in "the patient's best interests" (16). But individuals work within professional structures – complex workforce models - that profoundly influence their ability to honor these values, either individually or collectively (17) (18). This is especially true in a modern healthcare industry, including medicine and pharmacy, where cost-effectiveness is a factor and individual responsibilities may reflect larger trade-offs between care and efficiency (19) (20) (21) (22) (23) (24).

One of the challenges in designing a macro-level system is that healthcare is an industry in perpetual evolution, with changing demographic and epidemiological burdens constantly requiring new medicines and new treatments. Therefore, central to ambitions to systematically embed and enable healthcare values is the desire to build and empower a workforce that is properly responsive to changing needs (23). This requires many different skills and environments, including flexibility and adaptability, organizational skills and team working, a sense of self-worth, and good communication (25) (23).

Pharmacists have been a profession in transition for decades, with a history of strategic missteps and a difficult progression toward professionalization and reputation building (20) (26) (27) (28) (29). Internationally, arguments still persist on whether pharmacists are a science-based occupation or a clinically-practicing profession (30). A widespread dissonance within the profession has been identified as a significant barrier to the wide-scale, consistent and equitable practice change that the profession needs (31). Interestingly, the more established profession of medicine no longer suffers from the same "identity crisis"; medics in both UK and United States describe fundamental overlapping roles necessary for all future medics – that of "scholar" (educationalist), "scientist" (researcher), "practitioner" (clinician), and "professional" (leader) – roles which are often discrete in the pharmacist profession (32) (33) (34) (35). A new pharmacy workforce model and ethos is now needed to enable transformation, with professional curriculum changes and better experiential learning structures being proposed as potential solutions to the barriers and widespread inertia seen with pharmacist role development (36) (37).

The awareness of the need for pharmacists to accept a broader range of responsibilities has been increasing slowly over the last few decades (5) (12) (38). The COVID-19 pandemic has acted as a further catalyst to progress. Pharmacy adapted, delivered and focused on patient care and public health with no guidance on how to do so, through a responsiveness that was completely values-based. Many regulations were relaxed or enacted to enable pharmacists to be able to prescribe, vaccinate, and supply to the "top of their license"; the key is now to ensure they do not roll back with an inadvertent drop in

responsiveness and values-based care. This is particularly important as each country faces challenges around the iceberg of health need that developed during the pandemic. As we learn from the COVID-19 pandemic and consider how to best prepare for the future, we can apply values throughout (39).

Pharmacy can benefit from country case studies that provide insight into that nation's systems and drivers, but also approaches taken and lessons learnt, so that the profession can adopt and adapt learning around workforce development. Pharmacy in the Scottish National Health Service (NHS) hold similar values (40), ambitions (41) and professional standards (42) to those already described. But many of these are not properly honored by our incumbent workforce model. A recent Parliamentary report concluded that the national system of supply and demand for medicines "does not have a focus on patients" and, despite understanding the problems, lacked "accompanying ideas or impetus for change" (43). Over a longer preceding time period, the governmental Chief Pharmaceutical Officer has also highlighted the need for transformational change in workforce development and a modernization of the career progression pathway (41) (44).

Section Two: The *'Atomistic' Model*

In this section we will review the historic pharmacy workforce model within Scotland, discussing both its potential benefits and the strategic flaws that have precipitated a need for change.

Figure 1 shows a simplified visual display of the prevailing historic model for Scottish pharmacists.

In this *'Atomistic' Model*, employed roles are typically carved up into specialist jobs focused on the smallest (often singular) constituent professional 'pillar': *Clinician/Practice Provider*, *Educator*, *Leader/Manager* and *Researcher*. These roles are vital for system effectiveness but their delivery is typically segregated. For example, when asked to list their main roles and responsibilities in a recent national survey, pharmacists in a patient-facing delivery roles only answered management, education, and research, in 20%, 6%, and 2% of cases respectively (35).

The roles of the *Clinician/Practice Provider*, *Educator* and *Leader/Manager* commonly appear in both the public and the private sector. The *Researcher* role is not common in many workplaces and is mainly found in higher education institutes and bespoke sub-specialist research teams within large public employers (45). The *Clinician/Practice Provider* role encompasses a number of sub-identities which will not be discussed in depth here, including the medicines supplier, the clinical practitioner, the physician supporter, the governance champion and the medicines advisor (31) (46). The *Leader/Manager* also has a number of sub-identities, including the small business owner, the local team leader, and the corporate executive (31).

[Figure 1]

Roles are typically delivered in silos and information often flows in one direction. *Leader/Manager(s)* normally sets the strategic vision, with limited input from other role members. The *Educator* leads and coordinates generic training programs, with overarching educational governance, for common core

tasks and skills. *Clinicians/Practice Providers* typically need to individually seek ongoing training and experiences to deliver any new and advanced tasks needed to meet the evolving needs of the professional service and the various subpopulations. The *Clinician/Practice Provider* has limited input into the development of clinical skills in other pharmacy team members, beyond embryonic stages. Despite being the only team member with direct delivery responsibilities for the professional service to the population, the *Clinician/Practice Provider* has limited input into setting the strategic vision of the team, evaluating the effectiveness of the professional service and/or evaluating the unmet needs of the population. The *Researcher* role often sits outside the central healthcare delivery structures and the focus of the role is typically guided by research grants and personal interest.

There are a few obvious advantages to the *'Atomistic' Model*:

- *Simplicity*: Simple job profiles are easy to learn, less ambiguous (47), and easy to administer and monitor externally. It is easier, or at least more familiar, to train individuals in just one specialization or skill, hence, for instance, not to train *Clinician/Practice Provider(s)* in leadership or research strategies. This skill differentiation fits with a broader pattern of skill segregation in the larger economy, as we learned from Adam Smith in 1776 (48). But as Smith and others also emphasized, there are trade-offs between specialization and other important values such as autonomy, meaningfulness, sub-systemic collaboration, and local responsiveness (48) (49) (50).
- *Independence*: Within their skills differentiated jobs individuals have a relative degree of independence- i.e. they are free to deliver care or services often without the direct involvement of pharmacist colleagues, especially those from other siloes. This independence however comes at the cost of wider influence and collaboration and without any real agency to change the larger system of care. In reality pharmacists in the current model have independence rather than autonomy (51).
- *Centralized Control*: The centralized *Leader/Manager(s)* have control of rules applicable across the system. This yields an equality in the nature of rules faced by workers across the

system, correlative to lesser autonomy among non- *Leader/Manager(s)*. But the prescription of strict rules, strategies and policies on frontline workers often underdetermines many aspects of application and implementation, and alienates workers, both individually and collectively (52).

Prevailing Scottish pharmacist workforce training and skills development strategies are front-loaded in the career pathway - see Figure 2. Following a four-year undergraduate degree, graduates undergo an additional supervised foundation training year and exam. Thereafter, pharmacists are enrolled in a post-registration foundation training program for newly qualified pharmacists, which typically lasts another 2 years. During these embryonic and early career stages, pharmacists typically have protected individual development time and there are local and national strategies to support trainees. Beyond the post-registration foundation stage there are no formal standardized mandated programs, competency frameworks, curricula or infrastructure for further individual development. A small number of non-mandatory competency frameworks, focusing on clinical roles, have historically been in operation for certain professional sub-groups (53).

[Figure 2]

Of course, the *'Atomistic' Model* is a simplified abstraction. The status quo employment terms and conditions in Scottish pharmacy are somewhat more integrated, partly by existing design. Tasks and skills from each component 'pillar' are described in most current job descriptions and existing pay-bands structures (54). However, individuals can choose to separate themselves from a requirement to partake in the non-dominant 'pillars'. There is no day-to-day operational framework for individuals to develop, exercise or maintain skills in non-dominant 'pillars'; job-plans and protected time are not common, unlike in medics (55).

There is evidence of the consequences of '*Atomism*' available within the existing published literature. The uptake of leadership skills training is suboptimal, a gulf of leadership skills development commonly

opens up early in the career of most Scottish pharmacists and many struggle to implement leadership skills in day-to-day practice (56) (57) (58). Pharmacists identify that they do not understand the common vision and purpose of their teams (56). Pharmacists also commonly identify a training gap in their skills of population-level care delivery (59). The under-development of research and evaluation skills is also prevalent in most pharmacists (56) (45). Most pharmacists crave mentorship, supervision and senior guidance (56), where effectiveness of the supervision is positively correlated with the supportiveness of the learning environment in which it is delivered (60). Gaps in the availability of mentors can affect the development of clinical skills and services (58). Given the lack of expectation around individual development beyond post-registration foundation training, the uptake of personal continuing professional development activities is variable across the workforce (61). These problems manifest in the inability of many pharmacists to adapt to change and develop new roles (62) (58) and a predomination of a strong external locus of control in the workforce (58); this may be in part due to difference in belief over whose role it is to drive service development (58).

These issues precipitate in a number of critical strategic flaws:

- *Suboptimal Responsiveness to Population Need:* No common role focuses on the needs of the population. The *Leader/Manager* typically has no ongoing experience or visibility of patient-care and/or the effectiveness of the professional services; neither does the *Educator*. The *Researcher* typically is not employed by, or in any other institutional way directly responsive to the needs of, direct care providers or patients. Bar very small numbers of specialist public health roles, the *Clinician/Practice Provider* typically focuses on the needs of the individual patient but typically has no responsibilities to look at the needs of their wider patient population needs. They often have no mechanism to feed into service planning and the strategic vision of services. This leads to significant strategic information loss (i.e. those with knowledge vital to improve population care and services have no role to enact change). Therefore, despite good examples of patient-centeredness and responsiveness at the micro-level (63) (64), a resultant endemic lack of patient focus within the system is apparent at the meso and macro-levels (43).

- *Inconsistency & Inequity of Services*: Numerous micro-level examples of service improvement exist in Scottish pharmacy (64) (65) (66) (67). However, universality and equity of care are fundamental founding principles of NHS (68), and current national services for prescribing and supplying medication are inconsistent and inequitable (43). Differences in training and development of staff, including a lack of defined service specification, roles and responsibilities (69), and a lack of a co-produced team vision culminate in the lack of an overall strategic cohesion, unwarranted variation in service delivery, and ultimately unwarranted differences in care provision (43) (58) (70).
- *Lack of Adaptability*: The *'Atomistic' Model* focuses on the problems of yesterday, with a static vision. The information loss blunts the ability of local services to react to changes in population need or to directly implement new improved therapies (58). This tension between *Leader/Manager(s)* and the remaining staff body has created an epidemic crisis of confidence with decision making and a prevalent fear of change amongst many pharmacists (36) (58) (71) (72).
- *Isolation:* An isolation myth persists, that individual workers are responsible just for the prosecution of their day-to day-tasks. This leads to a workforce of people working alongside one another rather than collaborating together and understanding complementary roles, lacking a common identity and purpose (56). This breeds both inter-professional and intra-professional isolation within the workforce (73) (74) (75). Isolation from decision making is common and potentially contributes to a high prevalence of discontentment within the profession (76) (77).
- *Alienation:* Industries are alienating if they inhibit workers from caring about one another and their collective productive efforts (24). This would seem to be incongruous with the core values of healthcare, and yet it often persists (78) (79). "Policy alienation", as described by Tummers (80), can lead to "powerlessness" – where professionals feel they are unable to act based on personal experience and have no flexibility to implement, and "meaninglessness" – where professionals question the value of a policy in terms of its merits to the recipients of the product of the service, or indeed, wider society in general. Such alienation is the frustration and feeling

of despair that pervades through people that have no real say in shaping or determining their own destinies (81). Those healthcare professionals exposed to such processes experience a loss of professional agency, and thus an erosion of professionalism (82) (83). Alienation has been recently found in pharmacists working in NHS Scotland (84).

- *Burnout:* The inability to employ professional judgement in day-to-day practice is a known cause of moral distress in pharmacists (21) (85), and a conflict between work pressures and service quality is linked to professional burnout (86). Pharmacists are now commonly at high risk of burnout (87) (88).

NHS Scotland have outward-facing corporate values: care and compassion, dignity and respect, openness, honesty and responsibility, and quality and teamwork (40). Government has made delivering a healthy organizational culture a key long-term priority (89). However, there have been significant instances in which NHS organizations have been found lacking in the culture which they apply, with key recommendations of the need for a people-centered culture where the function of senior leaders is to listen, seek to understand, and to value contribution from within the organization (90).

Medical colleagues define professionalism with four core tenets: altruism or public service; ability to adhere to explicit standards and an ethical code; the application of specialist knowledge and skills; and a high degree of self-regulation over professional work (91). These values are inculcated during immersion in clinical practice, alongside the "hidden" curriculum of role modelling (91). Likewise, during pharmacist training, interactions with practicing role models who themselves have demonstrated capability across the 'pillars' support the professional socialization of neophyte learners with respect to the gaining of the requisite values, core skills and behaviors (92) (93).

To address the flaws in this '*Atomistic*' Model, the Scottish pharmacy workforce are now collaborating on a new functional system to operationalize these values and standards in the workforce organization and ethos, and hence in day-to-day practice.

Section Three: The *Collaborative Care Model*

In this section we will describe a new pharmacy workforce model, discussing the structure and content of professional standards and curricula that underpin the model, and the new ethos and workforce conditions that need to be built in order to support the model. Elements of this model are already in development (44).

Figure 3 shows a visual display of an emerging model in Scottish pharmacy, the *Collaborative Care Model*. The central strategic transformation is skills integration. This alternative institutionalizes a *gestalt* shift in how participants can understand their responsibilities. Rather than taking themselves to have responsibilities just for some static job description, individuals should think of themselves first and foremost as team players, part of a bigger system, and, crucially, as having a say in how the team and system should be built, trained, sustained, evaluated, managed, and adapted. The *Collaborative Care Model* is designed to deliver a two-level system-first ethos, according to which individuals take their own responsibilities to concern, first and foremost, the playing of their part in a dynamic integrated collaborative responsive to population health, and only thereafter to concern the prosecution of any given day-to-day task. These system changes will produce better skills sustainability in the workplace and ultimately better succession planning. This paradigm shift from an '*atomistic*' workforce model to a collaborative, interdependent, system-first approach will deliver more sustainable human capital for future pharmacy service provision.

[Figure 3]

Professional Standards & Curricula

The model is enabled and operationalized by new UK-wide initial education and training standards from the pharmacy regulator (94), and three new subsequent post-registration career-spanning curricula from the main UK professional body, the Royal Pharmaceutical Society (RPS) (95) (96) (97). Assessment of these standards and curricula require production of portfolios of evidence across all

'pillars', based on a triangulation of professional outputs, observations from third parties (i.e independent corroborations of skills) and personal reflection. Such an approach needs to immerse staff in a supportive experiential learning environment that allows them to develop new skills and form core professional behaviors. This allows the pharmacist to provide assurance of how they would behave in a real-life situation, at the appropriate level (98). An outward self-expression of inherent professionalism is not enough to provide public or professional assurance about an individual's competence to perform a role (99). The curricula-linked and competence-based nature of the *Collaborative Care Model* rectifies the historic lack of external assurance.

Curricula Structure: Skills Integration

All of the new regulatory standards and professional curricula are based around the integration of four professional 'pillars': Clinical/Professional Practice, Leadership/Management, Education, and Research. These four 'pillars' are commonly accepted in other health care professions as a vehicle to deliver a transformational culture, including medics, nursing and allied healthcare professionals (32) (34) (100) (101). WHO have promoted aspects of such a model in pharmacy for at least 25 years (102). The *Collaborative Care Model* is based on the premise that all roles in the system must involve these four 'pillars'. Previous conceptual pharmacist models have promoted the splitting of professional practice delivery roles from other professional roles concerning the "acts of practice", such as teaching, research and professional advocacy (103), and/or only looked at systems functions and not individual-level skills (104). A unified professional identity is vital in progressing the professionalization of pharmacy, and curricula have been previously proposed as a vehicle for growing social consciousness and collectivism (105) (106).

A New Professional Ethos

"It is clear from the work on social networks and systems theory that organizational structures are empty vessels until populated by the relationships that make them work" (107). This is where an industrial

ethos has a crucial role to play in constituting the kinds of relationships that individuals have within the system.

The curricula are explicitly designed to operationalize healthcare's existing widely-accepted agential values, through the evidencing of third-party corroboration of skills and behaviors in practice, from both colleagues and patients. This is partly achieved by the addition of a fifth domain in the curricula: Patient-Centered Care & Collaboration (95) (96) (97). Rather than being a 'pillar', a role, or a task, collaboration and patient-centeredness are the fundamental scaffolds for coherently delivering values-based care and are therefore importantly defined both for the regulator and professional leadership body (108) (42). Care is explicit in the roles that pharmacists provide (5). Care mandates trust, respect, and patient-centeredness (109). The emphasis on collaboration drives vertical task integration, while providing further support for distributed leadership. Concepts such as shared decision making, and the personalization of care are key components in Scottish Government's drive towards 'Realistic Medicine' (110). Pharmacists have long championed the role of realistic and person-focused healthcare (111). Medications can be bought and sold; arguably, care and respect cannot (19) (112). Care and respect are regulatory duties of all pharmacists (42).

Caring about patient-level and/or population-level health requires caring about the system that manages this, and not just about fulfilling one's own delegated tasks. Complex modern multi-disciplinary healthcare can never be delivered by any singular individual, of any professional type. Singular individuals can also never be omnipresent; they regularly rely on colleagues for delivery of their own duties (e.g. leave days). All individual staff members have also been trained by a host of previous colleagues and through the consent and goodwill of patients (19). Caring always requires listening, respect and partnerships; this is true in both our relationships with patients and those with our professional colleagues. Respect is also manifest in the greater levels of trust in others that is implicit in the more collaborative understanding of one's role (113). Properly understood, care entails respect and collaboration (109) (114).

Within the new system, all individuals will be required to undertake leadership and management duties (proportionate to their competence and career stage, but not restricted by their own grade). Although perhaps counterintuitive, an individual has more autonomy when they recognize that they are empowered to play their part in a large benevolent team effort, rather than when an individual defines their goals far more narrowly, perceives rules as constraints and the efforts of others as independent of their responsibilities (49) (115) (116) (117)

Clearer definitions of the scope of professional autonomy and agency built into each curriculum will systematically empower pharmacists to develop competence and confidence in professional leadership skills. This fits with the theories of distributed leadership and enhanced role orientation (118) (119). Professional agency is practiced when professionals exert influence, try new things and make choices, based on their skills and values, in ways that affect their own work, the work of others and/or the services that they provide (120). Professional agency is a key concept in many altruistic professions, including teaching and social work (120) (121). It can be seen as a critical bridge between professional competence and the achievement of improvement goals (122). Agency forms and develops over time (123) and hence why progressive development over a career spectrum is strategically important, rather than a 'big bang' approach (124). Hybrid clinician and leadership/managerial roles result in higher levels of professional agency and can enable service improvement in the healthcare sector (125).

For distributed leadership models to deliver effective change, there needs to be consistent communication of co-produced strategic priorities (125). The vision of any organization needs to be 'owned' by the staff body and they need to feel like they have helped shape it, understand the main aims, and see how their own individual roles relate to the desired outcomes. Such an approach would fit with Normalization Process Theory for complex interventions in healthcare, which shows that coherence, cognitive participation, and collective action are all key components of implementing new complex interventions (126). Similar efforts in NASA have enhanced the meaningfulness of work by

reaffirming the common goal and purpose of the whole team, by valuing all the component parts in those efforts (127). The COVID-19 pandemic has shown that pharmacy can achieve such feats, when a common values-based goal is clear and the front-line workers have the required level of professional agency to deliver.

With a culture of autonomous agency comes an explicit expectation of the graded level of population care that pharmacists would be accountable for: their immediate environment (e.g. individual patient) for foundation career stages, team/service-level care for advanced career stages and organizational-level care (or beyond) for consultant or executive career stages. The model consequently empowers workers with the autonomy to make the decisions needed to deliver the service goals and the autonomy to innovate for service development to meet the changing needs of the population. This clarity of role expectation will help to rectify the lack of patient focus and information loss.

Workforce Conditions

Focused implementation interventions, such as training programs, will need to accompany this new vision (128). Such training programs need to directly map to the definitions and levels described in the RPS curricula. Thereafter, initial recruitment into workplaces and opportunities for career reward (e.g. ability to apply for professional grade progression) need to be directly aligned to and gated by curricula completion.

Thus, in the *Collaboration Care Model* career advancement and reward are explicitly linked to evidencing higher levels of competence, higher levels of accountability for patient care provision, higher levels of scope of distributed leadership and higher levels of responsibility for the preservation, effectiveness and sustainability of the workplace system. Such a model would create a fair pathway for career progression, where the incentives to develop and advance are transparent (129). Such national models, linking competence to career progression, already exists for other healthcare professionals in the Scottish NHS (32) (101) (130).

Section Four: Arguments For and Against the *Collaborative Care Model*

In this section we will discuss some potential advantages of the model, both for the population and the workforce, and some potential concerns, including principled objections, transitional concerns, and unfinished business.

Potential Benefits- Population:

- *Service Consistency and Equity:* Work sharing is built into the collaborative model. Junior staff will not merely be standing in for absent senior staff, they will be fulfilling their requirement to spend some time working at higher levels and learning new skills, and senior staff will use the occasion to fulfil their requirement to lead, train, develop and mentor junior staff, and continue patient-facing/focused roles. This symbiosis will break the strategic flaw of person-dependent roles and slowly create a dynamic system composed of competent staff members; this forms a more secure basis for equitable services (65).
- *Responsiveness to Population Need: Researchers* and *Leader/Manager(s)* who also practice will be more responsive to inequalities in population health, the effectiveness of services and the development needs of staff members. Contact with patients is known to aid maturation of professionalism in pharmacists (131). *Clinicians/Practice Providers* and *Leader/Manager(s)* who also regularly undertake research will be more empowered to evaluate population need, and trial new interventions and solutions. Likewise, giving *Educators* more practice delivery duties will promote effectiveness by giving them a clearer sense of the nature of evolving roles and an understanding of the challenges of training competence in such duties. In these ways, skills integration, across different levels in the industrial hierarchy, will also facilitate more dynamic and effective skills acquisition and dissemination, since individuals will share the prosecution of practical tasks, including leadership responsibilities (72) (71). A certain level of centralized control also still persists, since higher competence levels in the hierarchy are associated with higher levels of scope of agency, responsibility and accountability. Higher graded staff (e.g. those in consultant or executive positions) can monitor and intervene in

inequalities in care across sub-localities that are not themselves responses to differences in need.

- *Effectiveness:* The ultimate aim of systemic standards in population health is to enable participants to raise the standards of services and care provision across the industry. Performance in healthcare is known to be boosted by both competence and motivation and inversely related to systematic barriers (132). Scottish Government see the modernization of workforce development strategies and the systematic development of leadership skills as key components in boosting performance and delivering the safer use of medicines at the macro-level (41). Examples which incorporate many of the concepts of the *Collaborative Care Model* are already shown to provide measurable benefits to populations of patients (65) (133). Distributed leadership models are also known to improve the effectiveness cross-disciplinary education and training in mental health teams (134) and there is a growing evidence base supporting the overall positive effects of distributed leadership in healthcare (135).

Potential Benefits- Workforce:

- *Satisfaction*. The *'Atomistic' model* scores poorly on all four core job dimensions on the dominant model: variety, autonomy, task identity, and feedback (136). It additionally scores poorly on the 'interpersonal' job dimensions, namely dealing with others and friendship opportunities (137). These criteria are confirmed by work in moral and political theory on meaningfulness in work (138) (139), which affirms the importance of autonomy and recognition by oneself and others of the value of one's professional contribution. The *Collaborative Care Model* scores highly on these criteria; work is varied, while still be recognizably unified and worthwhile (i.e. in servicing of the aims and needs of the system and population). As healthcare deals with a post-COVID staffing crisis, supporting and valuing staff and meeting their core needs for autonomy and control, belonging, and contribution and effectiveness will be needed to both recruit and retain staff (140) (141) Models promoting professional autonomy in nursing have been championed for over a decade (142).

- *Burnout.* Similar points can be made concerning themes in the literature on burnout: workload, control, reward, community, fairness, and values (143). The *Collaborative Care Model* aims to fare better on all of themes, with the exception of workload, on which the model's impact is uncertain.
- *Identity*. Pharmacy's identity crisis is a predictable result of incongruity between averred values and suboptimal institutionalization: deed does not agree with word. Furthermore, individuals are underutilized (144) (145): they employ a limited repertoire of skills, which do not require them to use and extend their training, nor to take responsibility for the larger system of needs-responsiveness. This is a classic marker of alienation (48) (49) (50). The *Collaborative Care Model* is designed to reconcile this and to connect with the population and their colleagues more directly, and to recognize their work as a contribution to the crucial larger benevolent management of population health. This fits both with moral theory on identity (50) and work in job design theory (146) (127), which emphasize the importance of recognition, by the lights of shared values, that one is making a meaningful professional contribution to a valuable collective effort. Integrative curricular approaches are also already hypothesized to improve professional identity formation in pharmacists (147).
- *Equality of Opportunity.* The *Collaborative Care Model* is not intended to inhibit pharmacists from majoring in one or more professional 'pillar' of interest or need. Enhanced horizontal skills integration and enhanced responsibilities and experiences will actually help attenuate existing inequalities in opportunity (58), by training and empowering pharmacists to act with a more complete and effective core skill set; all-types of pharmacists will have a greater say in how their teams, systems and 'specialisms' should be built, trained, sustained, evaluated, managed and adapted. This results in more substantive equality across the system, as skills and duties of implementation are shared. This increased level of democratic responsibility and equity of esteem should help attenuate the perceived lack of fairness of opportunity seen in the '*Atomistic*' *Model* (58) and enable the pursuit of a more satisfying and effective career trajectory (148), where senior system-level four 'pillar' roles are available to all.

Potential Concerns: Principled Objections:

- *Preferences for 'Atomistic' Responsibilities:* Even if the *Collaborative Care Model* would produce more effective, responsive, and equitable outcomes, it is an open question whether pharmacists would prefer the simpler job description model, with a clearer defining specialization and less responsibility. We think not, on quite general grounds, and we have provided some references from value theory to this effect above. But this is partly an empirical question, for further study.
- *Effects on Productivity:* As we protect time for four 'pillar' duties some might argue that there is less time for service delivery. A few counter arguments are apparent. The model involves task redistribution, therefore the total volume of whole-system work should be similar and productivity should therefore not suffer due to extra work. Currently service delivery is affected by the under-development of clinical and non-clinical skills (58) (149). Therefore protecting time for personal and service development may ultimately make the remaining service time equally or more effective. Finally, many industries are showing that productivity is not necessarily reduced by cutting direct service provision time (150) (151). Again, these are partly empirical questions for further study.
- *Cost:* Concerns about the potential costs of administering the model are likely to be raised (e.g. portfolio assessment fees from professional bodies). Decisions about who pays such fees (e.g. individuals vs organizations) are ongoing. However, as the model is explicitly designed to improve services and population care, cost-effectiveness is therefore a more appropriate measure of whether the model bring 'value' and 'values' for money (152). Future research needs to measure whether the cost-effectiveness of pharmacy services is improved as the model is implemented.
- *Lip Service and Bureaucracy*: Even if pharmacists would prefer the *Collaborative Care Model*, they are used to the *'Atomistic' Model*. Perhaps the profession will just pay lip service to the imposition of a greater range of responsibilities, turning it into a 'tick box' exercise. Certainly

a professional ethos cannot be established from the top down. To a significant extent, this is merely a transitional issue. Incoming professionals work with the system they find themselves in. Again, this is a matter for further consideration and research.

- *Part-Time Employees*: The realistic achievability of four 'pillar' working may be impractical in staff members who work part-time. This may disadvantage cohorts such as those with caring responsibilities (e.g. young children). Thought will be needed about how not to widen inequality of opportunity in such groups.
- *Resistive Agency*: With the prospect of empowering profession-wide agency comes the prospect of professionals using their agency to resist the common goals and vision (153). This scenario is seen within medics (153). Engaging people in the meaningfulness of work may be key to minimizing this.

Potential Pitfalls- Unfinished Business:

- *Regulation and Other Levers for Change:* Any mandated mechanisms for administering this model change are still up for debate. Both regulatory options (e.g. enhancing annual revalidation or linking portfolio completion to professional register annotation) and other non-regulatory options (e.g. terms of employment or service commissioning linked to portfolio completion) are being considered. In reality, a hybrid approach of these options will likely be needed.
- *Executive-Level Jobs:* An executive-level competence framework is also missing in the model and this will require further development and a standardized national approach.
- *Multi-Professional Agency Power Dynamics*: Pharmacists are overlooked and underutilized in healthcare and are often subservient to medics (144) (145). However, refocusing the professions efforts on a collaborative approach to population-need and values-based care open new opportunities. How much professional agency should pharmacist have in the wider multi-professional space to fix population-level problems? This can, in all likelihood, only be determined be developing evidence around the impact

of the model on population care and thereafter using this to achieve more multi-professional agency.

Potential Pitfalls- Transitioning Between Workforce Models:

- *Strategies for Resisting Inertia*: The timeframe of our proposed changes will help with inertia, as new role occupants at all levels increasingly encounter different expectations. The UK are focusing initially on the future generation in embryonic and early career stages, rather than the incumbent workforce. Prospective research should examine how to overcome tension or struggle between roles in both systems, as they live in parallel for a generation, while we slowly phase from one model to the other. Pharmacists can continue to learn from other disciplines are we progress e.g. medics (154) (155).
- *Multi-Skill Development*: One might worry that requiring a multitude of skills will lead to 'role ambiguity' (156) (157). In response, we point to the unity in an individual's 'core task identification' (158): this condition is met when individuals are leading and researching and teaching and practicing the same general standards. Moreover, as noted above, individuals can identify with their role in a better functioning system (127). Further research will be needed to help understand how non-dominant skills can be effectively developed and maintained within a complex system.

Section Five: Looking Forwards

In this penultimate section we will try and look forward, describing the first steps around practical application, considerations for the next generation and further topics for research.

Practical Application

Operationalizing the new workforce model is itself a collaborative effort in practice. The current paper is just one small part of this collaborative effort. This collaborative effort also needs to be dynamically responsive to changing conditions in population health and practice and, as these evolve, needs to be accountable for reviewing and refining the model going forward.

Figure 4 shows a visualization of an emerging Scottish pharmacy career pathway. In this pathway all roles in the profession involve four 'pillars' and all stages of the profession are aligned to professional curricula completion. New collaborative national Scottish governance and delivery infrastructures are forming to oversee, refine and deliver this vision (159).

[Figure 4]

Certain workforce-wide environmental prerequisites are needed for this model to work, including:

- *Protected Time/ Job Plans*: This is needed to facilitate multi-'pillar' duties (including time for self/service/colleague development), formal supervised learning event completion across the spectrum (95) (96) (97), and regular experiential learning opportunities.
- *Periodic Progress Reviews*: These need to be linked to competence, skills development and portfolio completion needs to support pharmacists at all levels.
- *Career Progression*: Initial recruitment into workplaces and opportunities for career progression need to be directly aligned to and gated by curricula completion.
- *National Training Programs / Mentorship Schemes*: Programs at advanced and consultant level need to be built to facilitate and sustain the model.

Table 1 shows illustrative examples of potential common role types in the future model, with indicative proportions of focus on each professional 'pillar' and a clear defined level scope of accountable patient-focus and collaborative agency.

[Table 1]

The Next Generation

Recognizing and engaging our multi-generational pharmacy workforce will be fundamental in the transformation of our workforce model. Millennial and Generation Z pharmacist graduates are the most ethnically diverse to date, are digital natives, and look for portfolio careers with reduced working hours to support a better work -life balance (160) (161). We are on the cusp of an enormous transformational shift for pharmacy practice, in every sector. We have a significant opportunity to harness this period of change and to inculcate a new way to learn and to be future pharmacists. Workplace and employer values are becoming more important in evolving generations and pharmacy need to consider how to achieve these if we hope to recruit and retain future generations (162) (163). Generational considerations will be key to long-term success.

Wider workforce reform is also needed, where we better utilize all members of the pharmacy team, including pharmacy technicians and pharmacy support workers. Pharmacy also need to be ready for the next industrialization revolution, where information technology and automation may make many jobs, like dispensing and manufacturing, redundant (164). This scenario will present both a threat and an opportunity. Focusing on population-need and values-based care will keep the future profession ready for these changes.

Future Research

The goal with the *Collaborative Care Model* is not to provide new answers but to raise an alternative workforce structure, environment, and ethos in which all pharmacists retain professional agency and can ask and effectively solve new questions, focused on the changing needs of the population. Each participant in the system needs to consider their own questions, relevant to their local needs, and the goals of their local teams and organizations. Here are a few new questions relevant to the model:

- *Models for Distributed Leadership:* More specific proposals for distributed leadership are needed across the health care sector (125) (128) (129). Future research need to focus on the specific needs and challenges of the pharmacy sector, as we move forward.
- *Improved Realization of Values, and Responsiveness*: Mixed methods research needs to test whether the expected benefits are experienced by both patients and pharmacists in real-life and whether population health benefits are realized.

Beyond Scottish Pharmacy

The small publicly-funded single-system nature of the Scottish NHS will make the implementation of the *Collaborative Care Model* a realistic long-term goal. However, we believe the model will be applicable to other national pharmacist systems and (*mutatis mutandis*) to other industries. Our arguments and theory around competence-based practice, a systems-first approach, skills integration, professional agency, workforce ethos, and working conditions are not by their nature specific to pharmacists and are designed to focus on values, patient-centeredness, system-effectiveness and workers welfare.

In other countries within different WHO regions, under the remit of the International Pharmaceutical federation (FIP), many examples exist where elements of this model may be applicable. For example, in Indonesia, initiatives were set up between professional body (Indonesia Pharmacy Association) and Health Ministry, with support from FIP to re-shape the whole workforce to support the delivery of Universal Health Coverage (165). In Iceland, adoption of early career foundational training model has

685 supported better integration of acute/community sectors, promoted by their professional body (IFU)
686 and supported by FIP (166). Finally, in the Eastern Mediterranean Region, there is policy movement in
687 this direction – linking better training with better care with similar models (167).
688
689 Pharmacy is made up of twin professions: pharmacists and pharmacy technicians. The *Collaborative*
690 *Care Model* has potential applicability to both professions. Other healthcare professional groups are
691 also currently on their own difficult journey with the implementation of competence-based four 'pillar'
692 workforce models and therefore this paper may be widely applicable across many different professional
693 groups (168) (169) (170).
694

Section Six: Conclusion

'*Atomistic*' skills segregation is suboptimal in a perpetually evolving modern profession and healthcare system. It contributes to a lack of patient and population focus, an erosion of professional agency and derealization of pharmacist's skills. This induces inequity and inconsistency of care and opportunity, poor succession planning, isolation from our colleagues and alienation from healthcare values. This road can lead to individual-level discontentment and professional burnout.

Four-'pillar' skill sets and duties are needed in all roles moving forward. Educational skills are always vital for vertical succession planning and sustainability of services. Regardless of role, research skills are crucial to understand population and workforce need and to evaluate achievement of our strategic goals. Leadership/management skills are indispensable to empower pharmacists, boosting autonomy and professional agency, mitigating critical information loss and redefining a required level of population accountability. Clinical and/or other professional practice roles keep pharmacists rooted in patient care and visible of the effects of their decisions. Patient-centeredness and collaboration are the essential values-based scaffolds needed to hold these all together.

Healthcare values, the four core skills-based 'pillars' and the meaningfulness of our work can and must become our common bond. Creating the ethos and working conditions to realize these is all of our jobs. Otherwise our averred healthcare values, our professionalism, and institutionalization will remain at odds. Values-based healthcare, in the form of caring, respect and collaboration, will keep us from that path.

The *Collaborative Care Model* is simply that: a model, a concept, a vision. Scotland is now taking the first collaborative steps on trying to implement and achieve this vision through the operationalization of career-long professional curricula. These interdependent career stages require an integrated workforce model and an associated system-first ethos, where all pharmacists understand their part to play in our dynamic and systemic responsiveness to population care.

References

1. **Hurst L, Mahtani K, Pluddemann A, Lewis S, Harvey K, Briggs A, Boyle A, Bajwa R, Haire K, Entwistle A, Handa A, Heneghan C.** Defining Value-based Healthcare in the NHS: CEBM report. 2019. https://www.cebm.net/2019/04/defining-value-based-healthcare-in-the-nhs/ (accessed 31st May 2022).

2. **World Health Organization.** Our Values. https://www.who.int/about/who-we-are/our-values (accessed 31st May 2022).

3. **International Pharmaceutical Federation.** Who we are. https://www.fip.org/who-we-are (accessed 5th July 2022).

4. **Pharmacy Schools Council.** The future role of the pharmacist. https://www.pharmacyschoolscouncil.ac.uk/features/the-future-role-of-the-pharmacist/ (accessed 7th July 2022).

5. **Hepler CD, Strand LM.** Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm.* 1990. Vol. 47, 3. 533-43. PMID: 2316538.

6. **International Pharmaceutical Federation.** Pharmacy Workforce Intelligence: Global Trends report 2018. *2018.* The Hague. ISBN 978-0-902936-44-7 https://www.fip.org/file/2077.

7. **Bates I., John C., Seegobin P. Bruno A.** An analysis of the global pharmacy workforce capacity trends from 2006 to 2012. *Human Resources for Health* . 2018. Vol. 16, 3. doi 10.1186/s12960-018-0267-y.

8. **I, Udoh A. Ernawati D.K. Akpan M. Galbraith K. Bates.** dvancing pharmacy roles in primary care: a needs-based approach to adopt and adapt a global development framework. *WHO Bulletin* . 2020. doi dx.doi.org/10.2471/BLT.19.248435.

9. **Bader, L., Bates, I., Schneider P., Charman W.** Transforming Pharmacy and Pharmaceutical Sciences Education in the Context of Workforce Development. *International*

747 *Pharmaceutical Federation.* The Hague, 2017. ISBN-978-0-902936-40-9
748 https://www.fip.org/file/1387 (accessed 22nd July 2022).
749 10. **Bader L., Bates I.** Research, development and evaluation strategies for pharmaceutical
750 education and the workforce: A global report. *International Pharmaceutical Federation* . The
751 Hague, 2017. ISBN 978-0-902936-41-6 https://www.fip.org/file/1385 (accessed 22nd July
752 2022).
753 11. **Bader L., Bates I., Galbraith K.** Trends in advanced practice and specialization in the
754 global pharmacy workforce: A synthesis of country case studies. *Int. J. Pharm Practice.*
755 2020. Vol. 28. 182-190. doi:10.1111/ijpp.12612 .
756 12. **Bates I, Bader L., Galbraith K.** A global survey on trends in advanced practice and
757 specialisation in the pharmacy workforce. *Int. J. Pharm Practice.* 2020. Vol. 28. 173-181.
758 doi:10.1111/ijpp.12611.
759 13. **Elvey R, Hassell K, Lewis P, Schafheutle E, Willis S, Harrison S.** Patient-centred
760 professionalism in pharmacy: values and behaviours. *J Health Organ Manag.* 2015. Vol. 29,
761 3. 413-30. doi: 10.1108/JHOM-04-2014-0068. PMID: 25970533..
762 14. **Earle-Payne, K., Forsyth, P., Johnson, C.F. et al.** he standards of practice for delivery
763 of polypharmacy and chronic disease medication reviews by general practice clinical
764 pharmacists: a consensus study. *Int J Clin Pharm.* 2022. https://doi.org/10.1007/s11096-022-
765 01387-7.
766 15. **Perkins RJ, Horsburgh M, Coyle B.** Attitudes, beliefs and values of students in
767 undergraduate medical, nursing and pharmacy programs. *Aust Health Rev.* 2008. Vol. 32, 2.
768 252-5. doi: 10.1071/ah080252. PMID: 18447811.
769 16. **Benson A, Cribb A, Barber N.** Understanding pharmacists' values: a qualitative study of
770 ideals and dilemmas in UK pharmacy practice. *Soc Sci Med.* 2009. Vol. 68, 12. 2223-30. doi:
771 10.1016/j.socscimed.2009.03.012. Epub 2009 May 4. PMID: 19410345.

17. **D, Badcott.** Professional values in community and public health pharmacy. *Med Health Care Philos.* 2011. Vol. 14, 2. 187-94. doi: 10.1007/s11019-010-9281-0. PMID: 20803257.

18. **Zheng, R.** What is My Role in Changing the System? A New Model of Responsibility for Structural Injustice. *Ethical Theory and Moral Practice* . 2018. Vol. 21. 869–885. https://doi.org/10.1007/s10677-018-9892-8.

19. **Pellegrino, ED.** he commodification of medical and health care: the moral consequences of a paradigm shift from a professional to a market ethic. *J Med Philos.* 1999. Vol. 24, 3. 243-66. doi: 10.1076/jmep.24.3.243.2523. PMID: 10472814.

20. **Bush, J. Langley, C.A. Wilson, K.A.** The corporatization of community pharmacy: Implications for service provision, the public health function, and pharmacy's claims to professional status in the United Kingdom. *Research in Social and Administrative Pharmacy.* 2009. Vol. 5, 4. https://doi.org/10.1016/j.sapharm.2009.01.003..

21. **Kruijtbosch, M., Göttgens-Jansen, W., Floor-Schreudering, A. et al.** Moral dilemmas of community pharmacists: a narrative study. *Int J Clin Pharm.* 2018. Vol. 40. 74-83. https://doi.org/10.1007/s11096-017-0561-0.

22. **Hollnagel, E.** The ETTO Principle: Efficiency-Thoroughness Trade-Off: Why Things That Go Right Sometimes Go Wrong. CRC Press, 2009. https://doi.org/10.1201/9781315616247.

23. **Desselle, S.P. Zgarrick, D.P.** *Pharmacy Management: Essentials for All Practice Settings (2nd Edition).* s.l. : McGraw-Hill Mecical, 2009. DOI: 10.1036/0071494367.

24. **Maguire, B.** 'Efficient Markets and Alienation. *The Philosophers Imprint.* 2022. https://philarchive.org/archive/MAGMEAv3.

25. **Matheson C, Robertson HD, Elliott AM, Iversen L, Murchie P.** Resilience of primary healthcare professionals working in challenging environments: a focus group study. *Br J Gen Pract.* 2016 : s.n. Vol. 66, 648. e507-15. doi: 10.3399/bjgp16X685285. PMID: 27162205.

797 26. **Adamcik BA, Ransford HE, Oppenheimer PR, Brown JF, Eagan PA, Weissman FG.**
798 New clinical roles for pharmacists: a study of role expansion. *Soc Sci Med.* 1986. Vol. 23, 11.
799 1187-200. doi: 10.1016/0277-9536(86)90338-2. PMID: 3810205.
800 27. **Walton, C.A.** The evolutionary eighties: pharmacy, a profession in transition. *American*
801 *Journal of Pharmaceutical Education.* 1978. Vol. 42, 5.
802 28. **Robinson, J.** Looking back at 175 years of the Royal Pharmaceutical Society. *The*
803 *Pharmaceutical Journal.* 2016. Vol. 296, 7888. DOI:10.1211/PJ.2016.20200958.
804 29. **Denzin, N.K. Mettlin, C.J.** Incomplete Professionalization: The Case of Pharmacy.
805 *Social Forces.* 1968. Vol. 46, 3. https://doi.org/10.2307/2574885.
806 30. **Dreischulte, T., van den Bemt, B., Steurbaut, S. on behalf of the European Society of**
807 **Clinical Pharmacy.** European Society of Clinical Pharmacy definition of the term clinical
808 pharmacy and its relationship to pharmaceutical care: a position paper. *Int J Clin Pharm.*
809 2022. https://doi.org/10.1007/s11096-022-01422-7.
810 31. **Kellar J, Singh L, Bradley-Ridout G, Martimianakis MA, van der Vleuten CPM,**
811 **Oude Egbrink MGA, Austin Z.** How pharmacists perceive their professional identity: a
812 scoping review and discursive analysis. *Int J Pharm Pract.* 2021. Vol. 29, 4. 299-307. doi:
813 10.1093/ijpp/riab020. PMID: 33978740.
814 32. **General Medical Council.** Tomorrow's Doctors: Outcomes and standards for
815 undergraduate medical education. 2009.
816 https://www.kcl.ac.uk/lsm/study/outreach/downloads/tomorrows-doctors.pdf.
817 33. **Royal College of Physicians.** Doctors in society: medical professionalism in a changing
818 world. 2005.
819 https://cdn.shopify.com/s/files/1/0924/4392/files/doctors_in_society_reportweb.pdf?1574531
820 1214883953343.

821 34. **Cooke, M. Irby, D.M. O'Brien, B.C. Shulman, L.S.** Educating Physicians: A Call for
822 Reform of Medical School and Residency. s.l. : Jossey-Bass, 2010. Vol. 1st edition. ISBN-10
823 : 047045797X.
824 35. **General Pharmaceutical Council.** Survey of registered pharmacy professionals 2019:
825 Main Report. 2019. https://www.pharmacyregulation.org/sites/default/files/document/gphc-
826 2019-survey-pharmacy-professionals-main-report-2019.pdf (accessed 16th August 2022).
827 36. **Forsyth P, Rushworth GF.** Advanced pharmacist practice: where is the United Kingdom
828 in pursuit of this 'Brave New World'? . *Int J Clin Pharm.* 2021. Vol. 43, 5. 1426-1430. doi:
829 10.1007/s11096-021-01276-5. Epub 2021 May 15. PMID: 33991288.
830 37. **Frankel GE, Austin Z.** Responsibility and confidence: Identifying barriers to advanced
831 pharmacy practice. *Can Pharm J* . 2013. Vol. 146, 3. 155-61. doi:
832 10.1177/1715163513487309. PMID: 23795200.
833 38. **van Mil, J.W.F., Schulz, M. & Tromp, T.F.J.D.** Pharmaceutical care, European
834 developments in concepts, implementation, teaching, and research: a review. *Pharm World*
835 *Sci* . 2004. Vol. 26. 303–311. https://doi.org/10.1007/s11096-004-2849-0.
836 39. **The Economist Group.** A country-level pandemic response toolkit: Enabling lessons
837 learned. 2021. https://impact.econ-
838 asia.com/perspectives/sites/default/files/download/eiu_country-
839 levelpandemictoolkit_oct2021.pdf (accessed 7th July 2022).
840 40. **NHS Scotland.** Values and Principles. 2022. https://workforce.nhs.scot/about/principles-
841 and-values/ (accessed 31st May 2022).
842 41. **Scottish Government.** Achieving excellence in pharmaceutical care: a strategy for
843 Scotland. Crown, 2017. https://www.gov.scot/publications/achieving-excellence-
844 pharmaceutical-care-strategy-scotland/ (accessed 31st May 2022).

42. **General Pharmaceutical Council.** Standards for Pharmacy Professionals. https://www.pharmacyregulation.org/standards/standards-for-pharmacy-professionals (accessed 31st May 2022).

43. **Health and Sport Committee, Scottish Parliament.** Supply and demand for medicines. 2020. https://digitalpublications.parliament.scot/Committees/Report/HS/2020/6/30/Supply-and-demand-for-medicines (accessed 31st May 2022).

44. **NHS Education for Scotland.** *Pharmacist Career Framework Review - Report of the Review Advisory Group.* 2020. https://www.nes.scot.nhs.uk/news/pharmacy-career-review-published/ (accessed 31st May 2022).

45. **Lowrie R, Morrison G, Lees R, Grant CH, Johnson C, MacLean F, Semple Y, Thomson A, Harrison H, Mullen AB, Lannigan N, Macdonald S.** Research is 'a step into the unknown': an exploration of pharmacists' perceptions of factors impacting on research participation in the NHS. *BMJ Open.* 2015. Vol. 5, 12. e009180. doi: 10.1136/bmjopen-2015-009180. PMID: 26719315.

46. **Elvey, R.E.** Professional identity in pharmacy: A thesis submitted to the University of Manchester for the degree of Doctor of . *The Unvirsity of Manchester.* 2011 : s.n. https://www.escholar.manchester.ac.uk/api/datastream?publicationPid=uk-ac-man-scw:121273&datastreamId=FULL-TEXT.PDF (accessed 31st May 2022).

47. **Rizzo, J.R., House, R.J. & Lirtzman, S.I.** Role conflict and ambiguity in complex organisations. *Administrative Science Quarterly.* 1979. Vol. 15. 150-163.

48. **Smith, A.** An inquiry into the nature and causes of the wealth of nations: Volumes One & Two. Liberty Fund Inc, 1776. ISBN-10 : 0865970084.

49. **Marx, K.** 'The Economic and Philosophical Manuscripts.'. *Marx and Engels Collected Works.* 1884. Vols. 3, Chapter 12.

50. **Kandiyali, J.** Schiller and Marx on Specialization and Self-Realization. *Reassessing Marx's Social and Political Philosophy.* Routledge, 2018. ISBN 9781315398068.

51. **Nobl Academy.** The Difference Between Autonomy and Independence. 2019. https://academy.nobl.io/the-difference-between-autonomy-and-independence/ (accessed 16th August 2022).

52. **Tucker DA, Hendy J, Chrysanthaki T.** How does policy alienation develop? Exploring street-level bureaucrats' agency in policy context shift in UK telehealthcare. . *Human Relations.* 2022. Vol. 75, 9. 1679-1706. doi:10.1177/00187267211003633.

53. **NHS Education for Scotland.** Pharmacist advanced training programmes. 2022. https://www.nes.scot.nhs.uk/our-work/pharmacist-advanced-training-programmes/ (accessed 31st May 2022).

54. **National Health Service.** National Profiles for Pharmacy. https://www.nhsemployers.org/sites/default/files/2021-06/pharmacy-profiles.pdf (accessed 31st May 2022).

55. **British Medical Association.** An overview of job planning. 2021. https://www.bma.org.uk/pay-and-contracts/job-planning/job-planning-process/an-overview-of-job-planning (accessed 21st July 2022).

56. **Rueben, A., Forsyth, P. Thomson, A.H.** Professional development beyond foundation training: a study of pharmacists working in Scotland. *Int J Pharm Pract.* 2020. Vol. 28. 165-172. https://doi.org/10.1111/ijpp.12585.

57. **Power, A. Allbutt, H. Munro, L. MacLeod, M. Kennedy, S. Cameron, D. Scoular, K. Orr, G. Gillies, J.** An evaluation of experiences and views of Scottish leadership training opportunities amongst primary care professionals. *Education for Primary Care.* 2017. Vol. 28, 3. 159-164, DOI: 10.1080/14739879.2016.1266239.

58. **Bailey, G. Dunop, E. Forsyth P.** A qualitative exploration of the enablers and barriers to the provision of outpatient clinics by hospital pharmacists. *Int J Clin Pharm.* 2022. https://doi.org/10.1007/s11096-022-01435-2.

59. **Pfleger, D.E., McHattie, L.W., Diack, H.L. et al.** Views, attitudes and self-assessed training needs of Scottish community pharmacists to public health practice and competence. *Pharm World Sci.* 2008. Vol. 30, 801. https://doi.org/10.1007/s11096-008-9228-1.

60. **Terry D, Ganasan S, Aiello M, Huynh C, Wilkie V, Hughes E.** Pharmacists in advanced clinical practice roles in emergency departments (PARED). *Int J Clin Pharm.* 2021. Vol. 43, 6. 1523-1532. doi: 10.1007/s11096-021-01275-6. Epub 2021 May 10. PMID: 33973150.

61. **Power A, Johnson BJ, Diack HL, McKellar S, Stewart D, Hudson SA.** Scottish pharmacists' views and attitudes towards continuing professional development. *Pharm World Sci.* 2008. Vol. 30, 1. 136-43. doi: 10.1007/s11096-007-9156-5. PMID: 17891472.

62. **Seston EM, Schafheutle EI, Willis SC.** "A little bit more looking…listening and feeling" A qualitative interview study exploring advanced clinical practice in primary care and community pharmacy. *Int J Clin Pharm.* 2021. doi: 10.1007/s11096-021-01353-9. Epub ahead of print. PMID: 34807365.

63. **Speirits IA, Boyter AC, Dunlop E, Gray K, Moir L, Forsyth P.** Patient experiences of pharmacist independent prescriber-led post-myocardial infarction left ventricular systolic dysfunction clinics. *Int J Pharm Pract.* 2021. Vol. 29, 1. 55-60. doi: 10.1111/ijpp.12662. PMID: 32786143..

64. **Buist, E., McLelland, R., Rushworth, G.F. Stewart, D., Gibson-Smith, K., MacLure, A., Cunningham, C., MacLure, K.** An evaluation of mental health clinical pharmacist independent prescribers within general practice in remote and rural Scotland. *Int J Clin Pharm.* 2019. Vol. 41. 1138–1142 (2019). https://doi.org/10.1007/s11096-019-00897-1.

65. **Forsyth P, Moir L, Speirits I, McGlynn S, Ryan M, Watson A, Reid F, Rush C, Murphy C.** Improving medication optimisation in left ventricular systolic dysfunction after acute myocardial infarction. *BMJ Open Qual.* 2019. Vol. 8, 3. e000676. doi: 10.1136/bmjoq-2019-000676. PMID: 31544164.

66. **Lowrie R, Stock K, Lucey S, Knapp M, Williamson A, Montgomery M, Lombard C, Maguire D, Allan R, Blair R, Paudyal V, Mair FS.** Pharmacist led homeless outreach engagement and non-medical independent prescribing (Rx) (PHOENIx) intervention for people experiencing homelessness: a non- randomised feasibility study. *Int J Equity Health.* 2021. Vol. 20, 1. 19. doi: 10.1186/s12939-020-01337-7. PMID: 33413396.

67. **Hunt V, Anderson D, Lowrie R, Montgomery Sardar C, Ballantyne S, Bryson G, Kyle J, Hanlon P.** A non-randomised controlled pilot study of clinical pharmacist collaborative intervention for community dwelling patients with COPD. *NPJ Prim Care Respir Med.* 2018. Vol. 28, 1. 38. doi: 10.1038/s41533-018-0105-7. PMID: 30305634.

68. **Delamothe T.** Founding principles. *BMJ.* 2008. Vol. 336. 1216 doi:10.1136/bmj.39582.501192.94.

69. **Frost TP, Adams AJ.** Are advanced practice pharmacist designations really advanced? *Res Social Adm Pharm.* s.l. : 14, 2018. Vol. 5. 501-504. doi: 10.1016/j.sapharm.2017.10.002. Epub 2017 Oct 7. PMID: 29097045..

70. **Pharmacotherapy service will not be standard across Scotland**;Online. *The Pharmaceutical Journal.* 2022. DOI:10.1211/PJ.2019.20207412.

71. **Teixeira B, Gregory PAM, Austin Z.** How are pharmacists in Ontario adapting to practice change? Results of a qualitative analysis using Kotter's change management model. *Can Pharm J* . 2017. Vol. 150, 3. 198-205. doi: 10.1177/1715163517701470. PMID: 28507655.

942 72. **Gregory PAM, Teixeira B, Austin Z.** What does it take to change practice? Perspectives
943 of pharmacists in Ontario. *Can Pharm J* . 2017. Vol. 151, 1. 43-50.
944 doi:10.1177/1715163517742677.
945 73. **Cooper RJ, Bissell P, Wingfield J.** `Islands' and `doctor's tool': the ethical significance
946 of isolation and subordination in UK community pharmacy. *Health.* 2009. Vol. 13, 3. 297-
947 316. doi:10.1177/1363459308101805.
948 74. **Silcock, J. Raynor, D.K.T, Petty, D.** The organisation and development of primary care
949 pharmacy in the United Kingdom. *Health Policy.* 2004. Vol. 67, 2.
950 https://doi.org/10.1016/S0168-8510(03)00121-0.
951 75. **Hindi, AMK, Jacobs, S, Schafheutle, EI.** Solidarity or dissonance? A systematic review
952 of pharmacist and GP views on community pharmacy services in the UK. *Health Soc Care*
953 *Community.* 2019. Vol. 27. 565– 598. https://doi.org/10.1111/hsc.12618.
954 76. **Pharmacy Magazine.** Most pharmacists unhappy with career choice.
955 https://www.pharmacymagazine.co.uk/latest/pharmacists-unhappy-with-their-career-choice
956 (accessed 31st May 2022).
957 77. **Karampatakis GD, Ryan K, Patel N, Lau WM, Stretch G.** How do pharmacists in
958 English general practices identify their impact? An exploratory qualitative study of
959 measurement problems. *BMC Health Serv Res.* 2019. Vol. 19, 1. 34. doi: 10.1186/s12913-
960 018-3842-y. PMID: 30642315.
961 78. **Tucker DA, Hendy J, Chrysanthaki T.** How does policy alienation develop? Exploring
962 street-level bureaucrats' agency in policy context shift in UK telehealthcare. *Human*
963 *Relations.* 2021. doi:10.1177/00187267211003633.
964 79. **Kartal, N.** Evaluating the relationship between work engagement, work alienation and
965 work performance of healthcare professionals. *International Journal of Healthcare*
966 *Management.* 2018. Vol. 11, 3. 251-259, DOI: 10.1080/20479700.2018.1453969.

967 80. **Tummers, L.** Policy Alienation and the Power of Professionals: Confronting New
968 Policies. s.l. : Edward Elgar Publishing Ltd, 2013.
969 81. **Reid, J.** Alienation, Rectorial Address. *University of Glasgow.* 1972.
970 https://www.gla.ac.uk/media/Media_167194_smxx.pdf (accessed 31st May 2022).
971 82. **Tummers, L.G., Bekkers, V.J.J.M., Van Thiel, S. Steijn, A.J.** The effects of work
972 alienation and policy alienation on behavior of public employees. *Administration & Society.*
973 2015. Vol. 47, 5. 596-617.
974 83. **Vähäsantanen, K., Räikkönen, E., Paloniemi, S.** A Novel Instrument to Measure the
975 Multidimensional Structure of Professional Agency. *Vocations and Learning.* 2019. Vol. 12.
976 267–295 https://doi.org/10.1007/s12186-018-9210-6.
977 84. **Rushworth G.F. Jebara T. Tonna A.P. Rudd I. Stewart F. MacVicar R.**
978 **Cunningham, S.** General Practice Pharmacists' experience of Advanced Clinical Assessment
979 courses: a theoretically underpinned qualitative exploration. *Research Square (Pre Print).*
980 2022. https://doi.org/10.21203/rs.3.rs-1713532/v1.
981 85. **Astbury JL, Gallagher CT.** Moral distress among community pharmacists: causes and
982 achievable remedies. *Res Social Adm Pharm.* 2020. Vol. 16, 3. 321-328. doi:
983 10.1016/j.sapharm.2019.05.019. PMID: 31171433.
984 86. **Royal Pharmaceutical Society**, Mental Health and Wellbeing Survey 2020. 2020.
985 https://www.rpharms.com/recognition/all-our-campaigns/workforce-wellbeing/wellbeing-
986 survey-2020 (accessed 31st May 2022).
987 87. **Majority of pharmacists still at high risk of burnout, survey results suggest.** *PJ.*
988 2021. Vol. 307, 7956. DOI:10.1211/PJ.2021.1.119691.
989 88. **McQuade, BM, Reed, BN, DiDomenico, RJ, Baker, WL, Shipper, AG, Jarrett, JB.**
990 Feeling the burn? A systematic review of burnout in pharmacists. *J Am Coll Clin Pharm.*
991 2020. Vol. 3. 663– 675. https://doi.org/10.1002/jac5.1218.

89. **NHS Scotland.** Everyone Matters: 2020 Workforce Vision- Implementation Plan 2018-2020. 2017. https://www.workforcevision.scot.nhs.uk/wp-content/uploads/2017/12/Everyone-Matters-2020-Workforce-Vision-Implementation-Plan-2018-20.pdf (accessed 31st May 2020).

90. **Scottish Government**, Cultural issues related to allegations of bullying and harassment in NHS Highland: independent review report. *2019.* s.l. : Crown. https://www.gov.scot/publications/report-cultural-issues-related-allegations-bullying-harassment-nhs-highland/pages/3/ (accessed 31st May 2022).

91. **Brown MEL, Coker O, Heybourne A, Finn GM.** Exploring the Hidden Curriculum's Impact on Medical Students: Professionalism, Identity Formation and the Need for Transparency. *Med Sci Educ.* 2020. Vol. 30, 3. 1107-1121. doi: 10.1007/s40670-020-01021-z. PMID: 34457773.

92. **Jee, S.D.** The process of professional socialisation and development of professionalism during pre-registration training in pharmacy [thesis]. *University of Manchester.* 2014. https://www.research.manchester.ac.uk/portal/files/54551961/FULL_TEXT.PDF%20Accessed%2031st%20March%202022 (accessed 31st May 2022).

93. **Schafheutle, E. Hassell, K. Ashcroft, D. Hall, J. Harrison, S.** Professionalism in Pharmacy Education. *Pharmacy Practice Research Trust.* 2010. https://pharmacyresearchuk.org/wp-content/uploads/2012/11/Professionalism_in_pharmacy_education_final_report.pdf (accessed 31st May 2022).

94. **General Pharmaceutical Council.** Standards for the Initial Education and Training of Pharmacists. 2021. https://www.pharmacyregulation.org/initial-training (accessed 31st May 2022).

95. **Royal Pharmaceutical Society.** Post-Registration Foundation Curriculum. *2020.* https://www.rpharms.com/development/credentialing/post-registration-foundation/post-registration-foundation-curriculum (accessed 17th June 2022).

96. **Royal Pharmaceutical Society** Core Advanced Curriculum. 2022. https://www.rpharms.com/development/credentialing/core-advanced-pharmacist-curriculum (accessed 27th June 2022).

97. **Royal Pharmaceutical Society.** Consultant Pharmacist Curriculum. *2020.* https://www.rpharms.com/development/credentialing/consultant/consultant-pharmacist-credentialing (accessed 17th June 2022).

98. **Witheridge A, Ferns G, Scott-Smith W.** Revisiting Miller's pyramid in medical education: the gap between traditional assessment and diagnostic reasoning. *Int J Med Educ.* 2019. Vol. 10. 191-192. doi:10.5116/ijme.5d9b.0c37.

99. **Health Education England.** Governance of advanced practice in health and care provider organisations. 2022. https://advanced-practice.hee.nhs.uk/resources-news-and-events/governance-of-advanced-practice-in-health-and-care-provider-organisations/ (accessed 21st July 2022).

100. **Manley, K.** A conceptual framework for advanced practice: an action research project operationalizing an advanced practitioner/consultant nurse role. *J Clin Nurs.* 1997. Vol. 6, 3. 179-90. PMID: 9188335.

101. **Scottish Government**, Transforming nursing, midwifery and health professionals roles: district nursing roles. s.l. : Crown, 2017. https://www.gov.scot/publications/transforming-nursing-midwifery-health-professionals-roles-district-nursing-role-integrated/documents/ (accessed 31st May 2022).

102. **World Health Organization.** Consultative Group on the Role of the Pharmacist in the Health Care System & World Health Organization. Division of Drug Management and

Policies. *The role of the pharmacist in the health care system : preparing the future pharmacist : curricular development : report of a third WHO Consultative Group on the Role of the Pharmacist.* s.l. : World Health Organization, 1997. https://apps.who.int/iris/handle/10665/63817.

103. **Scahill SL, Atif M, Babar ZU.** Defining pharmacy and its practice: a conceptual model for an international audience. *Integr Pharm Res Pract.* 2017. Vol. 6. 121-129. doi: 10.2147/IPRP.S124866. PMID: 29354558.

104. **Bader LR, McGrath S, Rouse MJ, Anderson C.** A conceptual framework toward identifying and analyzing challenges to the advancement of pharmacy. *es Social Adm Pharm.* 2017. Vol. 13, 2. 321-331. doi: 10.1016/j.sapharm.2016.03.001. Epub 2016 Mar 18. PMID: 27117185.

105. **Kellar J, Lake J, Steenhof N, Austin Z.** Professional identity in pharmacy: Opportunity, crisis or just another day at work? . *Can Pharm J* . 2020. Vol. 153, 3. 137-140. doi: 10.1177/1715163520913902. PMID: 32528593.

106. **Schlitz, M. Vieten, C. Miller, E.** Worldview Transformation and the Development of Social Consciousness. *Journal of Consciousness Studies.* 2010. Vol. 17, 7-8. 18-36.

107. **Grint, K.** Wicked Problems and Clumsy Solutions: the Role of Leadership. *Clinical Leader.* s.l. : BAMM Publications, 2008. Vol. I, II. ISSN 1757-3424.

108. **Smith MG, Ferreri SP.** A model to inform community pharmacy's collaboration in outpatient care. *Res Social Adm Pharm.* 2016. Vol. 12, 3. 529-34. doi: 10.1016/j.sapharm.2015.07.005. PMID: 26314920.

109. **Maguire, B.** Fractal Solidarity (working paper). *The University of Edinburgh.* 2022.

110. **Scottish Government.** Personalising Realistic Medicine: Chief Medical Officer's Annual Report 2017-2018. *2019.* https://www.gov.scot/publications/personalising-realistic-

medicine-chief-medical-officer-scotland-annual-report-2017-2018/documents/ (accessed 15th June 2022).

111. **Maestri, W.F.** Values and Value Dilemmas in Pharmacology: A Theological Perspective. *The Linacre Quarterly.* 1981. Vol. 48, 4. 6.

112. **Mossialos E, Courtin E, Naci H, Benrimoj S, Bouvy M, Farris K, Noyce P, Sketris I.** From "retailers" to health care providers: Transforming the role of community pharmacists in chronic disease management. *Health Policy.* 2015. Vol. 119, 5. 628-39. doi: 10.1016/j.healthpol.2015.02.007. PMID: 25747809.

113. **R, Hardin.** Trust and Trustworthiness. *Russell Sage Foundation.* 2002. ISBN:978-0-87154-341-7.

114. **Bubeck, D.E.** Care, Gender, and Justice. s.l. : Clarendon Press. , 1995. ISBN-13: 9780198279907.

115. **Honneth, A.** Freedom's Right: The Social Foundations of Democratic Life. s.l. : Columbia University Press., 2014. ISBN: 9780231162463.

116. **Reith, A.** Legislating for a Realm of Ends: the Social Dimensions of Autonomy . *Reclaiming the History of Ethics.* s.l. : Cambridge University Press. , 1997. ISBN 9780511527258.

117. **Berlin, I.** 'Two Concepts of Liberty.'. s.l. : Clarendon Press, 1958.

118. **Parker, S.K. Toby D. Wall, T.D. Jackson, P.R.** "That's not My Job": Developing Flexible Employee Work Orientations. *AMJ.* 1997. Vol. 40. 899–929, https://doi.org/10.5465/256952.

119. **SK, Parker.** `That is my job': How employees' role orientation affects their job performance. *Human Relations.* 2007. Vol. 60, 3. 403-434. doi:10.1177/0018726707076684.

120. **Eteläpelto, A. Vähäsantanen, K. Hökkä, P. Paloniemi S.** What is agency? Conceptualizing professional agency at work. *Educational Research Review.* 2013. Vol. 10. 45-65. https://doi.org/10.1016/j.edurev.2013.05.001.

121. **Denis, J.L. van Gestel, N. Lepage, A.** Professional agency, leadership and organizational change. *The Routledge Companion to the Professions and Professionalism.* s.l. : Routledge, 2016. eBook ISBN9781315779447.

122. **BMJ Leader Blog.** Creating tomorrow today: seven simple rules for leaders. Blog five: Support people to build their agency at every level of the system by Helen Bevan and Göran Henriks. 2022. https://blogs.bmj.com/bmjleader/2022/06/16/creating-tomorrow-today-seven-simple-rules-for-leaders-blog-four-support-people-to-build-their-agency-at-every-level-of-the-system-by-helen-bevan-and-goran-henriks/ (accessed 18th June 2022).

123. **Vähäsantanen, K.** Professional agency in the stream of change: Understanding educational change and teachers' professional identities. *Teaching and Teacher Education.* 2015. Vol. 47. https://doi.org/10.1016/j.tate.2014.11.006.

124. **Reed BN, Klutts AM, Mattingly TJ 2nd.** A Systematic Review of Leadership Definitions, Competencies, and Assessment Methods in Pharmacy Education. *Am J Pharm Educ.* 2019. Vol. 83, 9. 7520. doi: 10.5688/ajpe7520. PMID: 31871362.

125. **Fitzgerald, L. Ferlie, E. McGivern, G. Buchanan, D.** Distributed leadership patterns and service improvement: Evidence and argument from English healthcare. *The Leadership Quarterly.* 2013. Vol. 24, 1. 227-239.

126. **Murray, E., Treweek, S., Pope, C. et al.** Normalisation process theory: a framework for developing, evaluating and implementing complex interventions. *BMC Med* . 2010. Vol. 8, 63. https://doi.org/10.1186/1741-7015-8-63.

127. **Carton, AM.** "I'm Not Mopping the Floors, I'm Putting a Man on the Moon": How NASA Leaders Enhanced the Meaningfulness of Work by Changing the Meaning of Work.

Administrative Science Quarterly. 2018. Vol. 63, 2. 323-369. doi:10.1177/0001839217713748.

128. **De Brún A, O'Donovan R, McAuliffe E.** Interventions to develop collectivistic leadership in healthcare settings: a systematic review. *BMC Health Serv Res.* 2019. Vol. 19, 1. 72. doi: 10.1186/s12913-019-3883-x. PMID: 30683089.

129. **Martin G, Beech N, MacIntosh R, Bushfield S.** Potential challenges facing distributed leadership in health care: evidence from the UK National Health Service. *Sociol Health Illn.* 2015. Vol. 37, 1. 14-29. doi: 10.1111/1467-9566.12171. PMID: 25529349.

130. **British Medical Association.** Medical training pathway. https://www.bma.org.uk/advice-and-support/studying-medicine/becoming-a-doctor/medical-training-pathway (accessed 2nd June 2022).

131. **Ireland, H. Sowter, J. O'Rourke R.** Professionalism development and assessment in the pre-registration pharmacist placement in England: transformative moments and maturation periods. *International Journal of Pharmacy Practice.* 2022. riac042, https://doi.org/10.1093/ijpp/riac042.

132. **Gray, J.A.M.** Chapter 8: Developing the Evidence Management Skills of Individuals. *Evidence-Based Healthcare.* s.l. : Elsevier Health Sciences, 1997. ISBN-13 9780443057212.

133. **Cameron ST, Glasier A, McDaid L, Radley A, Baraitser P, Stephenson J, Gilson R, Battison C, Cowle K, Forrest M, Goulao B, Johnstone A, Morelli A, Patterson S, McDonald A, Vadiveloo T, Norrie J.** Use of effective contraception following provision of the progestogen-only pill for women presenting to community pharmacies for emergency contraception (Bridge-It): a pragmatic cluster-randomised crossover trial. . *Lancet.* 2020. Vol. 396, 10262. 1585-1594. doi: 10.1016/S0140-6736(20)31785-2. PMID: 33189179.

134. **Morrissey S, Davidson G, McAllister M, McAuliffe D, McConnell H, Reddy P.** Preparing mental health practitioners for multidisciplinary mental health placements: a

distributed leadership approach to cross-disciplinary education and training. s.l. : Griffith Univeristy, Queensland, Australia, 2011. http://hdl.handle.net/10072/138032.

135. **De Brún A, O'Donovan R, McAuliffe E.** Interventions to develop collectivistic leadership in healthcare settings: a systematic review. *BMC Health Serv Res.* 2019. Vol. 19. 72. https://doi.org/10.1186/s12913-019-3883-x.

136. **Hackman, J.R. Lawler, E.E.,III.** Employee reactions to job characteristics. *Journal of Applied Psychology Monograph.* 1971. Vol. 55. 259-286.

137. **Parker, S. et al.** One Hundred Years of Work Design Research: Looking Back and Looking Forward. *Journal of Applied Psychology.* 2017. Vol. 12, 3. 403 - 420.

138. **Yeoman, R.** Conceptualising Meaningful Work as a Fundamental Human Need. *Journal of Business Ethics.* 2014. Vol. 125, 2. 235-251.

139. **Veltman, A.** Chapter 3. *Meaningful Work.* Oxford Scholarship Online, 2016. DOI:10.1093/acprof:oso/9780190618179.001.0001.

140. **The Kings Fund.** NHS workforce: our position. 2022. https://www.kingsfund.org.uk/projects/positions/nhs-workforce (accessed 27th July 2022).

141. **Nursing Times.** 'Good preceptorship positively impacts staff recruitment and retention'. 2022. https://www.nursingtimes.net/opinion/good-preceptorship-positively-impacts-staff-recruitment-and-retention-02-02-2022/ (accessed 27th July 2022).

142. **MJ, Weston.** Strategies for Enhancing Autonomy and Control Over Nursing Practice. *The Online Journal of Issues in Nursing.* 2010. Vol. 15, 1. DOI: 10.3912/OJIN.Vol15No01Man02.

143. **Leiter MP, Maslach C.** Six areas of worklife: a model of the organizational context of burnout. *J Health Hum Serv Adm.* 1999. Vol. 21, 4. 472-89. PMID: 10621016.

144. **Murray, R.** Community Pharmacy Clinical Services Review, Health Education England. 2016. https://www.england.nhs.uk/commissioning/wp-

content/uploads/sites/12/2016/12/community-pharm-clncl-serv-rev.pdf (accessed 2nd June 2022).

145. **Pottie, K. Haydt, S. Farrell, B. Kennie, N. Sellors, C. Martin, C. Dolovich, L.** Pharmacist's identity development within multidisciplinary primary health care teams in Ontario; qualitative results from the IMPACT (†) project. *Research in Social and Administrative Pharmacy.* 2009. Vol. 5, 4. 319-326. https://doi.org/10.1016/j.sapharm.2008.12.002.

146. **Ilgen, D.R. Hollenbeck, J.R.** The structure of work: Job design and roles. *Handbook of industrial and organizational psychology* . s.l. : Consulting Psychologists Press, 1991. 165–207.

147. **Noble C, McKauge L, Clavarino A.** Pharmacy student professional identity formation: a scoping review. 2019. Vol. 8. 15-34. https://doi.org/10.2147/IPRP.S162799.

148. **Arneson, R.** Equality of Opportunity. *Standard Encylcopedia of Philosophy.* 2002. https://plato.stanford.edu/entries/equal-opportunity/ (accessed 31st May 2022).

149. **Graham-Clarke, E., Rushton, A. & Marriott, J.** Exploring the barriers and facilitators to non-medical prescribing experienced by pharmacists and physiotherapists, using focus groups. *BMC Health Serv Res.* 2022. Vol. 22, 223. https://doi.org/10.1186/s12913-022-07559-5.

150. **Association for Sustainable Democracy.** GOING PUBLIC: ICELAND'S JOURNEY TO A SHORTER WORKING WEEK. 2021. https://en.alda.is/2021/07/04/going-public-icelands-journey-to-a-shorter-working-week/ (accessed 5th July 2022).

151. **Unilever.** Unilever NZ to trial four-day work week at full pay. 2020. https://www.unilever.com.au/news/press-releases/2020/unilever-nz-to-trial-four-day-work-week-at-full-pay/ (accessed 5th July 2022).

152. **National Institute of health and Care Excellence (NICE).** How NICE measures value for money in relation to public health interventions. 2013. https://www.nice.org.uk/media/default/guidance/lgb10-briefing-20150126.pdf (accessed 14/7/22).

153. **Collin, K., Paloniemi, S., & Vähäsantanen, K.** Multiple Forms of Professional Agency for (non)crafting of Work Practices in a Hospital Organization. *Nordic Journal of Working Life Studies.* 2015. Vol. 5. 63-83. https://doi.org/10.19154/njwls.v5i3a.4834.

154. **Lega F, Sartirana M.** Making doctors manage… but how? Recent developments in the Italian NHS. *BMC Health Serv Res.* 2016. 16 Suppl 2(Suppl 2):170. doi: 10.1186/s12913-016-1394-6. PMID: 27230750.

155. **Sartirana, M.** Beyond hybrid professionals: evidence from the hospital sector. *BMC Health Serv Res.* 2019. Vol. 19, 1. 634. doi: 10.1186/s12913-019-4442-1. PMID: 31488149.

156. **Fisher, C.D. Gitelson, R.** A meta-analysis of the correlates of role conflict and ambiguity. *Journal of Applied Psychology.* 1983. Vol. 68. 320– 333. http://dx.doi.org/10.1037/0021-9010.68.2.320 .

157. **Jackson, S.E. Schuler, R.S.** A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes.* 1985. Vol. 36. 16–78. http://dx.doi.org/10.1016/0749-5978(85)90020-2 .

158. **Ranganathan, A.** When the Tasks Line Up: How the Nature of Supplementary Tasks Affects Worker Productivity (Working Paper). s.l. : Stanford University. https://arunaranganathan.com/docs/10-Ranganathan_Tea.pdf (accessed 16th June 2022).

159. **NHS Education for Scotland.** Pharmacy. 2022. https://www.nes.scot.nhs.uk/our-work/pharmacy/ (accessed 2nd June 2022).

160. **Medina MS, Pettinger TK, Niemczyk M, Burnworth M.** Teaching A to Z for a new generation of pharmacy learners. *Am J Health Syst Pharm.* 2021. Vol. 78, 14. 1273-1276. doi: 10.1093/ajhp/zxab174. PMID: 33895791.

161. **Vizcaya-Moreno MF, Pérez-Cañaveras RM.** Social Media Used and Teaching Methods Preferred by Generation Z Students in the Nursing Clinical Learning Environment: A Cross-Sectional Research Study. *Int J Environ Res Public Health.* 2020. Vol. 17, 21. 8267. doi: 10.3390/ijerph17218267. PMID: 33182337.

162. **Ingnyte.** Why Healthcare Branding is Essential in a Highly Competitive Industry. 2022. https://www.ignytebrands.com/healthcare-branding-ways-to-stand-out/#:~:text=Healthcare%20branding%20helps%20organizations%20ensure%20they%20are%20perceived,is%20the%20recognizable%20feeling%20that%20these%20elements%20evoke (accessed 15th June 2022).

163. **Indeed**, 5 Generations in the Workplace: Their Values and Differences. https://www.indeed.com/career-advice/career-development/generations-in-the-workplace (accessed 15th June 2022).

164. **Baines, D. Nørgaard, L.S. Babar, Z. Rossing, C.** The Fourth Industrial Revolution: Will it change pharmacy practice? *Research in Social and Administrative Pharmacy.* 2020. Vol. 16, 9. https://doi.org/10.1016/j.sapharm.2019.04.003.

165. **Meilianti S., Smith F., Bader L., Himawan R., Bates I.** Competency-based education: Developing an advanced competency framework for Indonesian pharmacists. . *Frontiers in Medicine* . 2021. Vol. 8. 2265. DOI https://doi.org/10.3389/fmed.2021.769326.

166. **Bates I, Meilianti S, Bader L, Gandhi R, Leng R, Galbraith K.** Strengthening Primary Healthcare through accelerated advancement of the global pharmacy workforce: a cross-sectional survey of 88 countriea. *BMJ Open.* 2022. Vol. 12, 5. e061860. doi: 10.1136/bmjopen-2022-061860. PMID: 35577465.

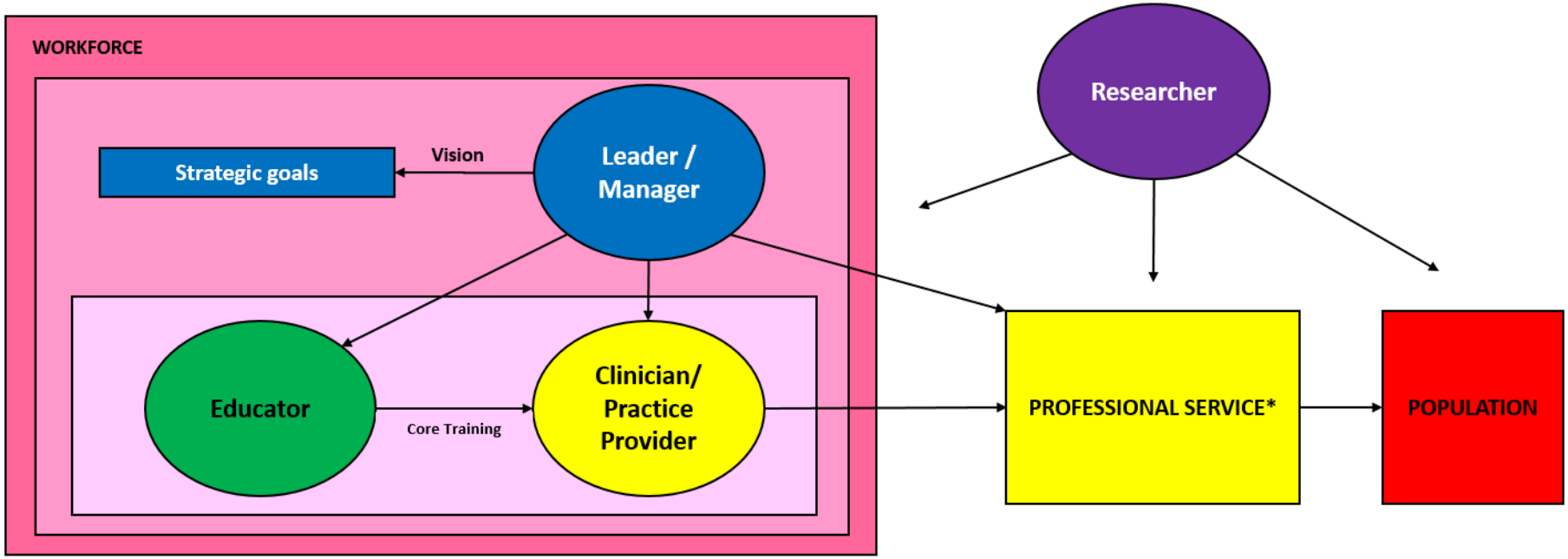
167. **Mukhalalati BA, Bader L, Alhaqan A, Bates I.** Transforming the pharmaceutical workforce in the Eastern Mediterranean Region: a call for action. *East Mediterr Health J.* 2020. Vol. 26, 6. 708-712. doi: 10.26719/emhj.19.064. PMID: 32621506.

168. **Fothergill LJ, Al-Oraibi A, Houdmont J, et al.** Nationwide evaluation of the advanced clinical practitioner role in England: a cross-sectional survey. *BMJ Open* . 2022. Vol. 12. e055475. doi: 10.1136/bmjopen-2021-055475.

169. **Welsh Government.** Modernising Allied Health Professions' Careers in Wales: A post registration framework. 2020. https://gov.wales/sites/default/files/publications/2020-02/modernising-allied-health-professions-careers-in-wales.pdf (accessed 5th July 2022).

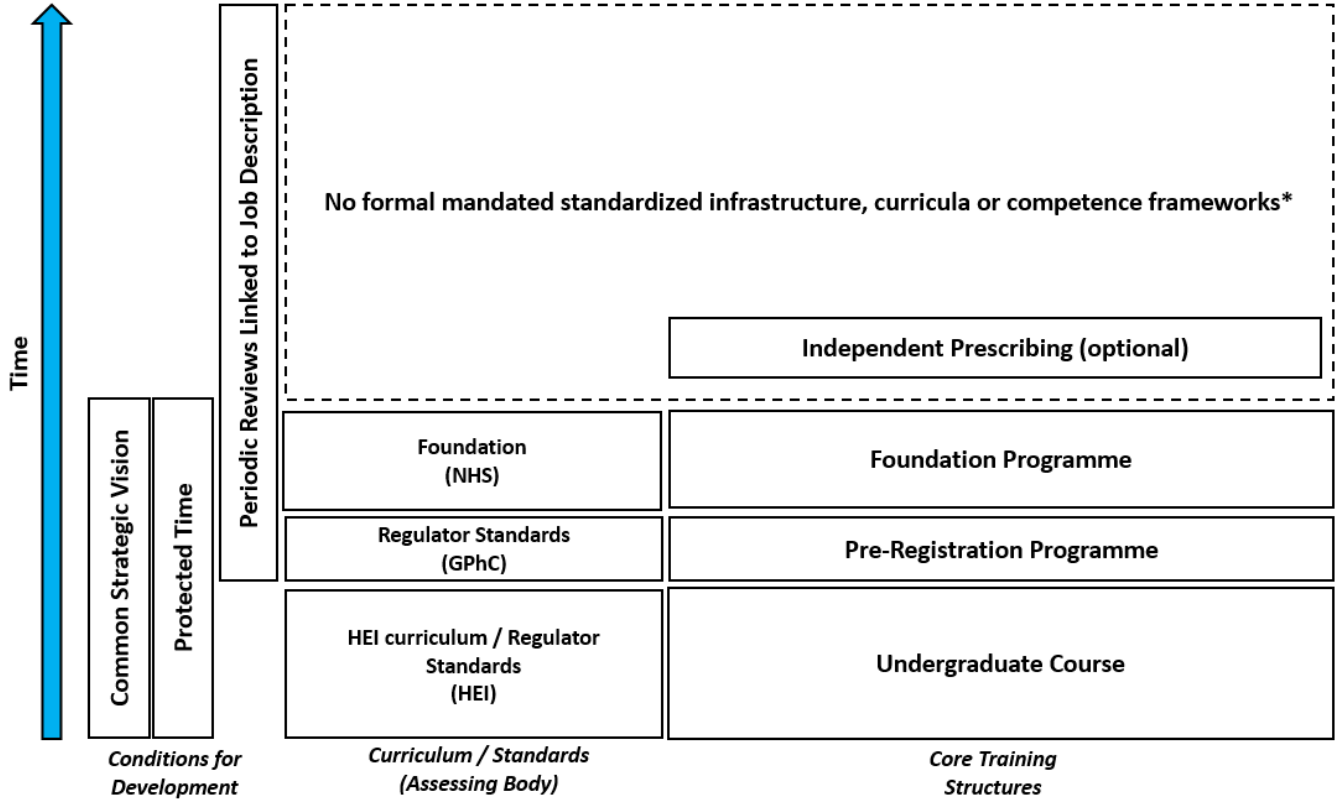
170. **Lawler J, Maclaine K, Leary A.** Workforce experience of the implementation of an advanced clinical practice framework in England: a mixed methods evaluation. *Hum Resour Health.* 2020. Vol. 18, 1. 96. doi: 10.1186/s12960-020-00539-y. PMID: 33272304.

Figure 1: 'Atomistic' Model



* Individuals seek on-going training & experiences to build and maintain new and/or changing competencies to meet evolving service demands and population needs

Figure 2: Historic Scottish Pharmacy Career Pathway



GPhC= General Pharmaceutical Council; HEI= Higher Education Institute; NHS= National Health Service

* A small number of non-mandatory competency frameworks, focusing on clinical roles, have historically been in operation for certain professional sub-groups

Figure 3: Collaborative Care Model

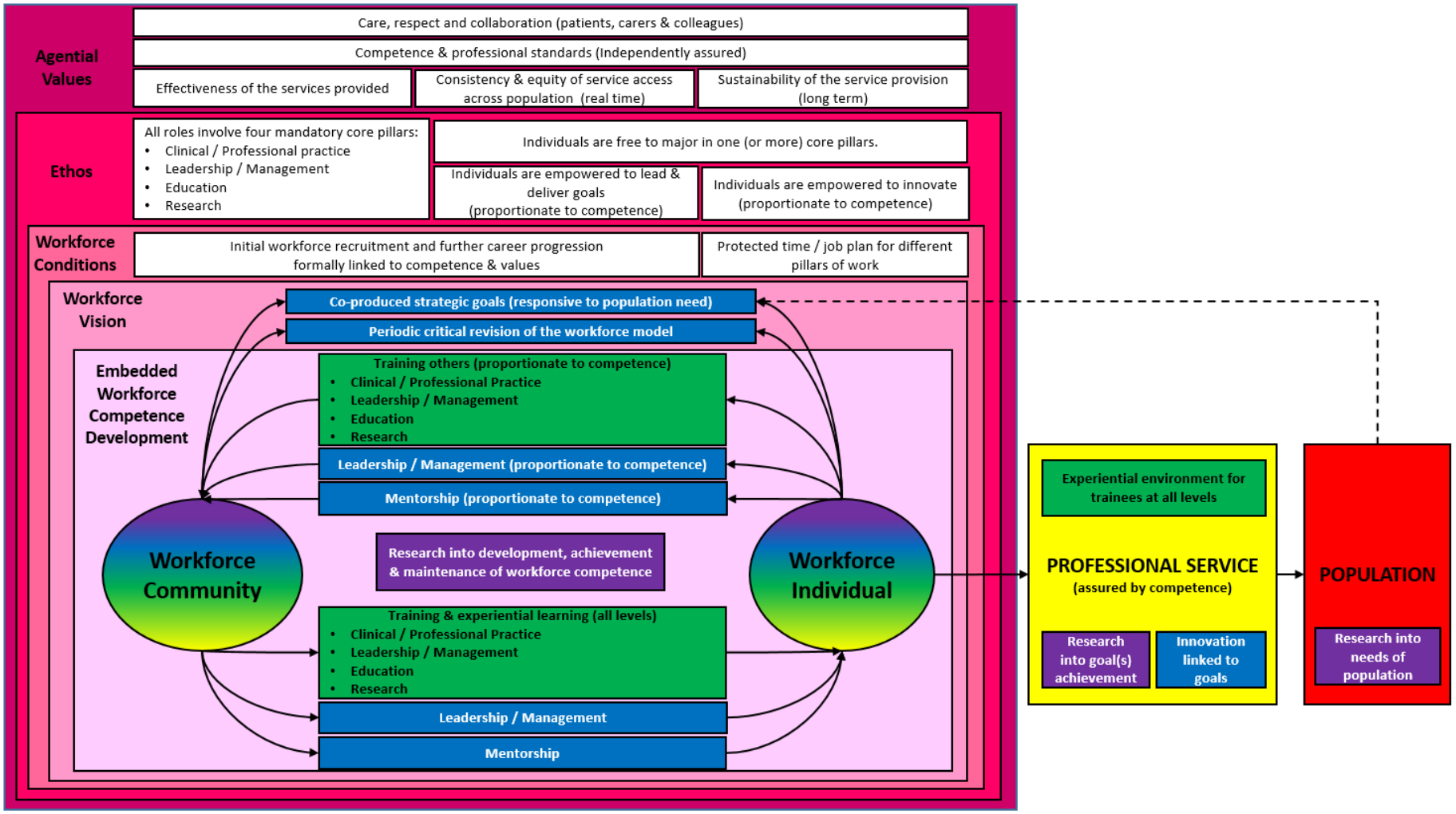
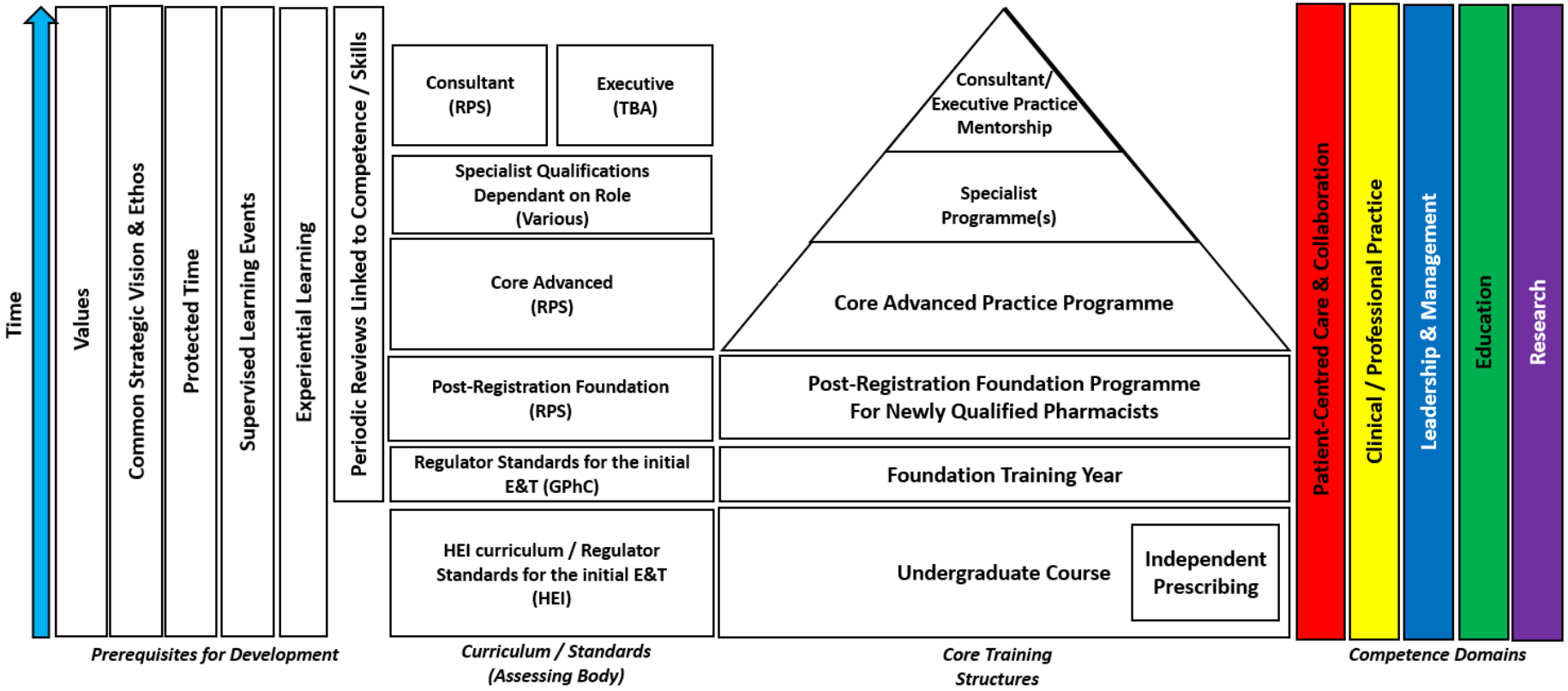


Figure 4: Emerging Future Scottish Pharmacy Career Pathway



E&T= Education and Training; GPhC= General Pharmaceutical Council; HEI= Higher Education Institute; NHS= National Health Service; RPS= Royal Pharmaceutical Society; TBA= To Be Arranged

Table 1: Examples of potential common role types in the future pharmacy model

	Foundation Pharmacist	Advanced Pharmacist (Professional Practice)	Advanced Pharmacist (Leadership)	Advanced Pharmacist (Education)	Advanced Pharmacist (Research)	Consultant Pharmacist	Executive Pharmacist
Clinical / Professional Practice	70-80%	50-70%	10-20%	10-20%	10-20%	20-40%	5-10%
Leadership / Management	5-10%	10-20%	50-70%	10-20%	10-20%	20-40%	70-80%
Education	5-10%	10-20%	10-20%	50-70%	10-20%	20-40%	5-10%
Research	5-10%	10-20%	10-20%	10-20%	50-70%	20-40%	5-10%
Scope of accountable patient-focus and collaborative professional agency	Immediate environment	Local team or service	Local team or service	Local team or service	Local team or service	Organization and/or beyond	Organization and/or beyond