
Article:
Lê, G, Morgan, R, Bestall, J et al. (2016) Can service integration work for universal health coverage? Evidence from around the globe. Health Policy, 120 (4). pp. 406-419. ISSN: 0168-8510

https://doi.org/10.1016/j.healthpol.2016.02.007

TITLE PAGE

Title: Can Service Integration Work for Universal Health Coverage? Evidence from Around the Globe

Authors: Gillian Lê[a]*, Rosemary Morgan[b], Janine Bestall[c], Imogen Featherstone[d] Thomas Veale[e], Tim Ensor[f]

a - University of Leeds, 101 Clarendon Road, Leeds, LS2 9LJ. UK. Telephone: 00 84 91 175 85 90; g.dalgetty@leeds.ac.uk

b - John Hopkins Bloomberg School of Public Health, 615 North Wolfe Street Baltimore, MD 21205; rosemary.morgan@jhu.edu

c - University of Leeds, 101 Clarendon Road, LS2 9LJ; J.Bestall@leeds.ac.uk

d - University of Leeds, 101 Clarendon Road, LS2 9LJ; I.Featherstone@leeds.ac.uk

e - University of York, Enterprise House, Innovation Way, Heslington, York, YO10 5NQ; tjfv@hotmail.com

f - University of Leeds, 101 Clarendon Road, Leeds, LS2 9LJ; T.R.A.Ensor@leeds.ac.uk

* Correspondence to: Gillian Lê,

Author contributions: GL, RM, TE conceptualised the study. GL, RM, JB and TV extracted data from papers and prepared the analysis.GL wrote the first drafts of this manuscript that was revised by RM, TE and JB. All authors commented on the analysis and revised the initial manuscript. Subsequent major revisions to the manuscript were undertaken by IF. All authors approved the final manuscript and agree to be accountable for all aspects of the work.

Acknowledgement: This paper is based on an independent report commissioned and funded by the World Health Organization. The views expressed are not necessarily those of the WHO.

Conflict of Interest: None

Word Count: excluding tables, figures and references, 5039. Total including all figures, tables, and references, 8138

Letter

Dear Editor,

Thank you for conveying the many constructive comments from reviewers on our manuscript and for inviting us to revise it. We have made the requested major revisions to the document and include, as requested, (1) a revision note, (2) the manuscript with all tracked changes, (3) the revised 'clean' manuscript with no mark-up. Please also note author changes – Professor Tim Ensor's name was erroneously lost from the first submission. Imogen Featherstone, who was engaged in the original review but was on maternity leave when we wrote the original submission, undertook the major revisions and is therefore included as co-author.

Yours sincerely

MANUSCRIPT

Highlights:

- Empirical impacts of past integration experiments were explored through a global review
- Positive outcomes for patients and clinicians without incurring additional financial costs were found
- Improvements were incremental hence integration should not be considered a fundamental 'game-changer'.

Abstract
Universal Health Coverage (UHC) is at the heart of the new 2030 Agenda for Sustainable Development. Health service integration is seen by World Health Organization as an essential requirement to achieve UHC. However, to date the debate on service integration has focused on perceived benefits rather than empirical impact. We conducted a global review in a systematic manner searching for empirical outcomes of service integration experiments in UHC countries and those on the path to UHC. Sixty-seven articles and reports were found. We grouped results into a unique integration typology with six categories - Medical staff from different disciplines; Patients and Medical Staff; Care Package for One Medical Condition; Care Package for Two or More Medical Conditions; Specialist stand-alone services with GP services; Community locations. We showed that it is possible to integrate services in different human development contexts delivering positive outcomes for patients and clinicians without incurring additional costs. However, the improved outcomes shown were incremental rather than radical and suggest that integration is likely to enhance already well established systems rather than fundamentally changing the outcomes of care.

Key words
Service integration, universal healthcare coverage, global review

Introduction

The new 2030 Agenda for Sustainable Development includes a target to "achieve universal health coverage, including…access to quality, essential health-care services" (Target 3.8, https://sustainabledevelopment.un.org/index.php?menu=1300).The presence of universal health coverage (UHC) within the post 2015 international development agenda builds on recent focus on this objective by global agencies such as the World Health Organization (WHO) [1] and World Bank. Their focus had been on the financing and human resource arrangements needed to achieve UHC [2] and to understand which disease programmes were the most cost-effective [3]. More recently, WHO has shifted emphasis to ensuring high quality, integrated service delivery as "critical" such that "UHC and people centered integrated health services should be regarded as interdependent and mutually reinforcing if the goals of UHC are to be realized" (WHO 2015 insert page number). Ensuring UHC presents unique challenges to the health care system. Demand for formal health care services increase [4] and government has a greater role in financing of health care through partial or full subsidy of health service costs for those who are unable to pay [5]. WHO therefore see integration as a strategy that can achieve a dual purpose: enable expanded and affordable UHC provision *and* ensure high quality and cost effective service delivery. In other words, align human and financial assets with provision of the right care at the right time in the right place to prevent waste and maximise scarce resources. "This principle is important in countries moving towards universal health coverage since scarce resources are likely to go to waste if governments do not also take action to transform service delivery" (WHO, 2015, page number?).
The considerable debate on service integration has tended to focus on *perceived* benefits, such as health system efficiency, cost effectiveness, holistic patient management and better

health outcomes for patients. As a result “very few studies report (…) empirically derived outcomes” [6], which only adds to the “urgency to evaluate and assess the efficacy, effectiveness, economics, and implementation” of such activities [7]. Ramsey, Fulop and Edwards (2009) agree that the evidence base is limited and focuses on processes of integration with less outcomes “especially regarding patient experience, clinical outcomes and costs” (p10). Yaya and Danhoundo note “limited evidence of the impact…on either population health outcomes or the productivity and efficiency of health systems” (2015 insert page number). Since WHO consider integration an essential component to achieve UHC, it is timely to consider whether integration can indeed achieve key impacts associated with UHC such as: a) positive change in population health and care process outcomes; b) improved equity of access between different service users; c) greater health effect at same or less cost of service provision (cost effectiveness); and d) responsiveness to users and user satisfaction with healthcare services.

The focus of this review is on integration of service delivery, the critical locus of care where patients engage with the health system. This is closely related to the “service or clinical integration” type outlined by Kodner as the “coordination of services and the integration of care in a single process across time, place and discipline” (author and page ref needed). For the purpose of this review we consider, loosely following Atun [see 8:p.5], that service delivery has four key components - medical conditions, medical professionals, patients, and tangible infrastructure. Our review therefore includes studies from different healthcare settings, delivered by different providers, and in different care locations such as family homes and the community for different patient groups. Our review is aligned with Curry and Ham’s (insert author ref) three levels of integration - macro, meso and micro - since the focus of our review is situated within the latter two. The meso level is where providers “seek to deliver integrated care for a particular group…with the same…conditions, through the redesign of care pathways and other approaches” (insert page ref) and the micro level is where providers “seek to deliver integrated care for individual service users…through care coordination, care planning…and other approaches” (insert reference - p7). We recognise that the different levels and types of integration are inter-related and that broader, macro-level health system integration will impact upon service delivery and outcomes in the mid to long term. However, to manage the diversity and quantity of literature, we explicitly exclude studies examining broader health system integration such as integration between service delivery and education and training systems [e.g. 9], financing [e.g. 10] or integration of planning and regulatory structures. Service integration between formal healthcare and social care is also excluded.

The evidence base on service integration is heterogeneous and contentious, having developed from numerous disciplinary and professional perspectives [6]. Different conceptual definitions are used, with different methodologies in studies of varying sample size, across different contexts. We dealt with this heterogeneity by scanning for empirical impacts in UHC contexts reporting on service delivery changes and grouped our results thematically to create a unique service integration typology. Our typology contrasts and combines results returned from the different studies and identifies patterns in empirical experience of countries pursuing both UHC and service integration and has an advantage of broadly representing the evidence currently available in the public domain. Based on this typology, we generalize our results for UHC countries not returned in our search as well as countries yet to invest in UHC.

The greater part of previous literature reporting on service integration outcomes and integration typologies is based on evidence from high income countries (HICs) (e.g. Ham et al; Ramsay et al, 2009; Curry and Ham, 2010). Our analysis examines integration in both high and low and middle income countries (LMICs). A global UHC agenda in which integrated care is fundamental must take into account the different contexts of healthcare delivery within and between countries so that all groups, particularly the vulnerable and

marginalized, are included. High income countries are already moving to integrated service configurations and delivery but such care is not universally accessible to many groups, such as ethnic minorities, adolescents and chronic drug addicts, each of which is under-represented in care. Low and middle income countries have yet to significantly implement integrated care in their public health systems [11], not least because of the complexities of implementation in contexts where healthcare infrastructure and human resources for health are poor. In conflict and post conflict countries, such infrastructure is often non-existent.

The rest of this article is structured as follows. The next section describes the methods used to undertake the review. Based on our results, we present our typology cross-referencing integration type to empirically reported impacts, as well as to different human development contexts. We go on to discuss the evidence base and consider whether service integration can work for UHC as hoped for by international development policy makers.

Materials and Methods

The review was conducted in a systematic, comparative manner. Academic and grey literature sources were searched for empirical evidence on the impacts of integrated care While we recognise that integrated care is of interest to all countries, we focused the search only on countries pursuing UHC. This was because we aimed to study how integration works within the specific context of countries implementing UHC: their health systems are likely to share certain characteristics such as greater pooled funding and more focus on public purchasing of services, as well as sharing the particular challenges outlined above. A second reason for our focus on UHC countries was to make the search tractable since the literature on integration is extremely broad. These countries were identified using the following criteria: a) coverage is already considered universal; or b) is considered 'on the path to UHC' that is, have made a commitment to achieving coverage through policy development and implementation. Policy implementation included at least one of the following: (1) explicit right (constitutional or otherwise enshrined in law) to comprehensive healthcare services for the entire population, free at point of delivery; (2) efforts made to provide financial coverage for those not covered by other schemes funded on a non-contributory basis; (3) where multiple schemes are utilised, efforts were made to converge benefits for different population groups. Countries 'on the path to' UHC are included to ensure that LMICs would be adequately represented in our search. The countries are listed in Appendix 1.

An overview of the search strategy and outcomes is detailed in Figure 1.

INSERT FIGURE 1 HERE

Searches were undertaken of EMBASE, Global Health, HMIC, Medline, Medline-in-Process & Other Non-Indexed Citations (all Ovid), ELDIS (Institute of Development Studies), Health Systems Evidence (McMaster University), IRIS (WHO), the WHO website and the Open Knowledge Repository (World Bank) databases. Search strategies were developed iteratively using free text and subject heading terms for the following search concepts:

- UHC concept - universal health, universal coverage, universal insurance, universal care, social health financing, free care, national provided care, state funded care, government funded healthcare, prepaid expenditure, health insurance, national health service, social insurance.
- People Centred Care - patient centred, person centred, client focussed, patient engaged, patient led, client directed, self-directed, case management, patient care.
- Integrated care - integrated healthcare system, integrated delivery, integrated care, integrated system, care pathway, managed care, continuity of care, disease management, shared care.

- Health Outcomes - outcome, treatment outcome, outcome research, outcome assessment, cost of illness, health care access, hospitalisation, mortality, health status, morbidity, patient satisfaction, health care disparity.
- Location - developing countries, Asia, South America, Latin America, Africa and terms for all countries with or working towards UHC.
- Review type publications - review, overview, and meta-analysis. Where available we used ready-made review publication filters to limit our search to review type publications.
- Empirical results only were sought, that reported against one or more of the key outcomes a) – d) noted in the introduction of this article and focused on service delivery.

A search of grey literature was undertaken from the following websites -

- The King's Fund, UK
- The Nuffield Trust, UK
- HSMC, University of Birmingham
- The RAND corporation/RAND Europe
- The Health Foundation, UK
- Commonwealth Fund, USA

Screening took place in two stages. First, titles and abstracts were screened. The first 126 records were screened independently by two reviewers and results discussed to reach agreement and consistency of screening. Thereafter screening was carried out independently. Second, three researchers then read the full articles and excluded articles that did not meet criteria. The following were excluded: studies where we could not determine which countries or human development context the results related to; studies reporting results that discussed integration between service delivery and other health system functions; and studies reporting results on person-centred care without any discussion of service delivery integration. Sixty-seven studies remained.

Data was extracted from those full text articles and reports using a data extraction table. Extraction data included general information about the study and the intervention activity, context, and results. In multi-country studies that included non UHC countries, only UHC relevant results were extracted. The type of evidence was also identified and researchers made an estimation of study reliability. However, evidence was not graded or weighted because a variety of study types were included in the review meaning that imposing a standardised quality criteria was impossible.

We thematically grouped our results by sorting integration activity into six categories to create a service integration typology. When sorting, we paid attention to the medical conditions reported, medical professionals and patients involved in the care process and the physical location of care [cf. 5p5]. Each category of integration in our typology set out to achieve particular goals through an often loosely stated theory of change. In this article we do not critique mechanisms for impact since our search focused on *correlation* between UHC contexts, selected empirical impacts and different forms of integration in order to report on impact per se.

Results

The studies returned were published between 1999 and 2014 with the majority dated from 2011. Nine study types are represented in this review (case study, systematic review, other literature review, random control trial, cohort study, other quantitative, qualitative studies, mixed methods, and other). The most common study type represented is systematic review

for HICs; for LMICs, the most common type of study was quantitative. Results from forty countries were reported with UK, Canada and Australia being the most visible. Evidence gaps quickly become apparent, with HIC contexts well reported but LMICs much less so. This evidence was sorted to develop our integration typology, set out in Table 1, detailing goals, common key features and the theory by which the type of integration is expected to change outcomes.

INSERT TABLE 1 HERE (Service Integration Typology)

Integration type was then compared with human development context (see Table 2) – high income HIC) and low to middle income (LMICs). Post-conflict countries pursuing UHC are including in the LMIC development context because so little evidence was returned. Integration type was the further cross-referenced with empirical impacts in order to assess whether integration can achieve key impacts associated with the UHC agenda (see Table 3)

INSERT TABLE 2 HERE (Integration Activity Across Human Development Contexts)

INSERT TABLE 3 HERE (Integration Impacts)

In HICs, the most common type of integration has been patients and medical staff, thereafter care packages between two or more medical conditions, and medical staff from different disciplines. The most common type of integration in LMIC contexts is the integration of care packages for two or more conditions and primary care. Unlike HICs, we found few examples of integration types focused on professional staff and patient self-management. This does not mean that improved team working was absent from “integration experiments” [12] in these countries, only that this element has formed part of a wider package of activity to achieve a different goal (such as integrated management of childhood diseases). Integration focusing on primary care is more prevalent in LMIC contexts, not unexpected given the weak primary care network in those contexts. A small number of studies focused on community care across HICs and LMICs, which were insufficient to draw clear conclusions but could suggest that ‘service delivery’ is still seen as an internal healthcare system activity.

Health outcome and care process is the most reported impact followed by cost effectiveness and user responsiveness/satisfaction. Equity was the least reported outcome. While policy concerns within the post 2016 agenda are focusing on how to maximise care with limited resources all the while ensuring equity, the evidence base is skewed towards reporting solely on effect on health and care processes. Cost-effectiveness was predominantly reported in HICs while other outcomes were generally reported equally across contexts.

Discussion

The literature on integration is heterogeneous and the evidence of impact fragmented. Our typology has the advantage of concentrating the available evidence on empirical (rather than perceived) impacts of service delivery in UHC contexts. By cross referencing integration type with both HIC and LMICs, a range of integration activities across contexts can be observed – such as which types of integration are prevalent where, and how service integration varies between context. This is important because infrastructures and resources to achieve UHC greatly differ. By mapping type, context and outcomes, we can infer which types of integration may be better equipped to support countries on the path towards UHC. It is important that when policy makers use evidence on integration, their assessment is focused on specific, relevant types, rather than on integration as a whole.

Integration Type and Context

It is evident that certain types of integration are more prevalent in particular contexts, which is unsurprising given the differing nature of healthcare systems. LMICs, for example, are increasingly characterised by a double burden of chronic and communicable diseases; with

high reliance on out of pocket payments (OOPs) and low public health expenditure as a percentage of GDP. These countries experience shortages of infrastructure, staff and essential supplies with poorly organised and fragmented delivery. In post conflict contexts, these issues are exacerbated by violence and insecurity, unstable governance and weak institutional capacity. In comparison, HICs tend to show a single burden of chronic illness, with higher levels of public health expenditure, and having moved to near universal UHC, very low OOPs with significant health infrastructure in place supporting highly organised services.

Whilst examples of each type of integration can be found within each context, our results show that integration of 'medical staff from different disciplines', 'patients and medical staff', and the 'care package for one medical condition' is predominately found in HICs. The types of service integration found most in LMICs is the integration of 'care packages for two or more medical conditions', 'specialist stand-alone services with GP services', and 'community locations'. Given the well reported staffing shortages and capacity gaps in healthcare services in LMICs, it would appear that there is an opportunity to use integration as a means to pool resources and work more efficiently. It is well known for example, that supervision, mentoring and training are often poorly conducted and that the integration of medical staff could overcome some of these constraints [13]. However, there were few examples of integration of 'patients and medical staff' in LMICs, unsurprising as hierarchical relationships between doctors and patients in LMICs can be strict. The sole example in our review (Aggithaya et al 2013) reported positive health outcomes in relation to patient involvement but unfortunately did not evaluate other impacts. Further research into how patient involvement could benefit services in LMICs would be beneficial.

In contrast, HICs have been moving towards greater patient involvement in care for some time. Efforts in the UK have enabled greater collaboration between medical staff and patients in their own care so moving towards co-production of health with a greater scrutiny of healthcare services by users [14]. HICs now face the issue of how to implement integrated care in a way for all, at scale, and at a reasonable pace across the whole healthcare system (Goodwin et al 2010).

Multi-component care packages for one or two or more medical conditions are a well-represented integration type in all contexts. The main difference between HIC and LMIC is in relation to the type of medical conditions being integrated. In HICs, integration tends to occur with non-communicable diseases (NCDs) that require chronic care management, whereas in LMICs integration tends to occur with communicable diseases, such as HIV/AIDS, sexually transmitted diseases, and tuberculosis. The integration of childhood diseases is also common in LMICs. This most likely reflects the disease burdens present within each context, and the fact that HICs have primary health facilities equipped with diagnosing and treating many communicable diseases. With NCDs becoming prevalent in many LMICs, and such contexts facing a double burden of disease, the type of integration of care packages found within HICs may become more prevalent in low income settings.

Integrating specialist and GP services was more prevalent in LMICs though few papers were identified. It will be difficult to achieve UHC in contexts which do not integrate primary care with more specialized services. Vertical programmes which provided specialized services were more common in LMICs, and often by their very nature did not integrate with primary care services. The Brazil example of a leprosy vertical programme which shifted the responsibility for initial case detection and treatment onto primary care staff is an example of how vertical programmes can be integrated into other services [15]. Outcomes of this programme included an increase in newly detected patients as a result of active case finding, and a significant increase in accessibility of the service. Evidence has shown, however, that due to a lack of integration with other services, vertical programmes often

duplicate and fracture service delivery [16]. Within HICs, this type of integration focused predominately on making primary care services more comprehensive and equitable.

Integration of community care locations with the formal health system was rarely reported in selected papers but is an obvious care locus that could support UHC, particularly in countries which are on the path to UHC and have weak or limited health infrastructure. In such contexts, community health workers and or volunteers have played an important role as they extend and deliver health services to poor and marginalised groups, often when the formal health system has limited capacity to do [17]. Within the studies identified in this review, community care within LMICs was solely for HIV/AIDS, whereas community care within HICs was for a range of conditions, and extended hospital-based care provided by trained medical professionals (including care for the elderly). Such care is only possible when a functional healthcare system already exists and is producing positive benefits and outcomes for patients.

It is important that integration fits with development context. There are key differences between HIC and LMICs, making certain types of integration more or less possible (or indeed relevant). Resource constraints within LMICs also mean that health policy makers will need to prioritize the types of integration they pursue (if any) and for what medical conditions. It will also be important to consider how cultural norms and values (including gender roles, norms, and values) may affect different forms of integration. For example, integration around care packages (especially where an element of self-management is included), or patients and medical staff, will demand that staff and patients interact with each other in changed ways, some of which may not be deemed acceptable by professionals or patients. Further research is necessary to illustrate how integration has worked in different contexts and for different people and cultures.

Integration Type and Outcomes

Different outcomes are evident across each of the types of integration, with most types of integration producing all four outcomes (community locations and the care package for one medical condition being the exceptions, which are missing equity and user satisfaction outcomes respectively). Overall, empirical results reported in Table 3 above are somewhat positive but notably some studies found no great leap in impact with integration. No type of integration has been overwhelmingly effective in improving one outcome over another, or improving all four outcomes at the same time. This is likely to be influenced by the type of measure that was chosen for evaluation and that is preferable and/or easier to measure. We discuss each outcome in turn.

Health and Care Process. Integrating medical staff from different disciplines appears to achieve improved care processes and timeliness of care, with decreased use of hospital services and institutional services, and improved quality of life (in terms of increased functionality experienced by patients). Team working and communication also improved. Improving staff coordination across different disciplines indirectly led to patients demonstrating a better understanding of their own illness at time of discharge. Integrating patients and medical staff shows decreased institutionalisation, slowed disease activity and increased wellbeing. In addition, patients appear to be more motivated to self-manage their condition. Integrating care packages for one or two or more conditions also show these effects, though interestingly Dietrich et al (2010) reported no change. Integrating and GP services did show increased life expectancy, reduced mortality and improved disease detection and treatment adherence, though the evidence in relation to improvements in disease status was not convincing. Integrating community locations reduced institutionalisation, improved wellbeing and achieved similar clinical outcomes with less clinical input. It is interesting that across the types of integration, outcomes appear to converge, indicating perhaps that the types of integration are quite similar, or that the integrated package has similar components which merely have a different emphasis (e.g.

better staff coordination was part of integrated management of childhood illness, included in care package for two or more conditions). It is therefore possible that any one of the types of integration set out here can achieve similar outcomes in relation to the health and care process but not for all risk factors across the board.

Cost Effectiveness. Integration rarely appears to lead to increased costs of care and usually results in a reduction in costs in reported studies. The impact on hospital costs resulting from better integration of medical staff working practices are most evident with reported increases in use of ambulatory alternatives to inpatient care and reductions in length of stay once in hospital. Increasing patient involvement in care (integration of patients and medical staff) could appear as an attempt to save money by pushing costs onto patients. There is, however, no evidence that patient satisfaction or outcomes suffer as a result. In most cases the reverse is true, with increased reported satisfaction arising from increased privacy and self-worth. For example, involving patients in treatment of lymphatic filariasis in India appears to improve self-reported quality of life [18]. Patients also appear to appreciate being trusted with their own treatment. There is, however, an intrinsic danger that devolving treatment to patients could be undertaken only to save costs and such initiatives should be monitored closely.

User Responsiveness & Satisfaction: Integration appears to have a generally positive impact on user satisfaction across contexts. This is even true for unaffected patients when HIV services and leprosy services, potentially stigmatising diseases, are integrated into routine care. The one exception is the integration of sexually transmitted infections into routine primary care (Dudley and Garner 2011). When considering user satisfaction outcomes, context is critical since what counts as a satisfier in one context will not necessarily be acceptable in another. All types of integration, except the integration of community locations, appear to greatly improve satisfaction. However, it is unlikely that interventions implemented within a HIC or LMIC context will be easily transplanted to other contexts without taking overall contextual considerations into account, such as resources, health system infrastructure and culture.

Equity: As equity is a vital outcome in relation to UHC, and service integration is seen as an essential strategy for achieving UHC, the evidence on service integration was examined for equity outcomes. Little evidence was reported on equity. This could be because equity outcomes are determined mainly by the vertical and horizontal equity features of the system in which integration happens, rather than by service integration per se. However, some equity impacts have been reported. The most striking evidence for improved equity is for the integration of specialist and GP services which showed greater geographic access to services for a larger population. The potential effects of integrated services on equity of access would be a valuable area for future research, particularly in UHC contexts in which financial barriers to access are reduced or removed. Even in UHC contexts, the most marginalized and vulnerable groups are often the last to benefit from services unless interventions are built in from the beginning to target such groups.

Limitations of the review

This review focused on UHC countries and countries on the path to UHC and excluded those that provide UHC regionally within countries that are not on an established path to UHC, especially in the USA. Stronger evidence for impact may have been found in those studies. USA apart, development of UHC is overwhelmingly a feature of post conflict and emerging economies but searches of both academic and grey literature revealed a major gap in the evidence base from these countries. It is possible that UHC goals in some LMICs on the path towards UHC remain as rhetoric and therefore have yet to be implemented. In some cases, it was difficult to know how the integrated service related to UHC within these contexts, that is, whether these services were implemented outside of interventions/ services to achieve UHC within a country on the path towards UHC. We made an assumption that

where the key criteria were met (see Methods), then countries were making efforts to implement UHC.

We also focused primarily on medical care in the formal health system and did not include evidence of impact on integration experiments that included social care, for instance.

Our review included a large number of reviews and as result, many search returns lacked detail on context. We also sought publically available studies of empirical impact – there are likely to be many more experiences that are not documented, or documented but not in the public domain. Having access to these empirical evaluations would likely alter the reported impacts of service delivery integration. Given the scattered evidence base on the empirical impacts of integration, it is also important that health and development donors commit to evaluation, to making the results of such evaluation publically available, and doing so over the mid to long term.

We did not examine the literature for mechanisms of effect that would detail how reported outcomes were achieved. Such a topic was outside the scope of the review. However, it is important to note that much of the evidence reported here is from trials because this was the type of evidence that was most likely to report on outcomes and impact. Trials tend to compare an intervention with a business-as-usual approach whereas integration experiments often take place at the same time in different parts of a health system. The actual mechanism for impact (as opposed to the theory of change) is often not detailed in trial evidence. We propose that evidence for the impact of integrated service delivery therefore requires a more pragmatic multidisciplinary approach that takes appropriate account of how interventions are implemented [e.g. 19].

Conclusion

Our literature review is unusual in drawing upon evidence from low, middle and high income countries to understand the empirical impacts of integration in service delivery. Previous literature had been weak in this area. We developed a unique integration typology from our results that may be useful for policymakers and researchers who wish to interrogate the evidence on outcomes of specific forms of service delivery integration in different human development contexts. Our review can evidence that service integration has delivered positive outcomes for patients and clinicians without incurring additional financial costs and has delivered improved health and care process outcomes with high levels of user satisfaction in different contexts. The WHO focus on integration as a means to UHC therefore appears logical, as we have shown here that integration in service delivery can contribute to the goals of UHC. However, we caution that significant leaps in any of the above outcomes was not found, rather the empirical impacts reported were incremental. Integration per se is not a 'game changer'. The lack of evidence on the impact of service integration on improving access to services, a vital outcome in relation to UHC, is of concern and should be prioritised for future research.

REFERENCES

1. WHO, *The World Health Report: Health Systems Financing - the Path to Universal Coverage*. 2010, World Health Organization: Geneva.
2. Maeda, A., et al., *Universal Health Coverage for Inclusive and Sustainable Development: A Synthesis of 11 Country Case Studies* Directions in Development - Human Development. 2014: World Bank.
3. Jamison, D.T., et al., *Disease Control Priorities in Developing Countries*. 2006, The World Bank: Washington.
4. Wallace, P.L.M., et al., *Co-creating Health: Evaluation of first phase. An independent evaluation of the Health Foundation's Co-creating Health improvement programme.*, in *The*

Health foundation. 2012, Applied Research Centre in Health and Lifestyle Interventions at Coventry University.: London

p. 1-148.

5. Giedion, U., E. Andrés Alfonso, and Y. Díaz, *The Impact of Universal Coverage Schemes in the Developing World : A Review of the Existing Evidence*. 2013, World Bank: Washington, D.C.
6. Armitage, G., et al., *Health systems integration: state of the evidence.* International Journal of Integrated Care [serial online], 2009. **9**.
7. Schultz, E. and K. McDonald, *What is Care Coordination?* International Journal of Care Coordination, 2014. **17 (1-2)**(5): p. 5–24.
8. Atun, R., et al., *Clearing the global health fog : a systematic review of the evidence on integration of health systems and targeted interventions.* 2009.
9. Tamblyn, R., et al., *Effect of a community oriented problem based learning curriculum on quality of primary care delivered by graduates: historical cohort comparison study.* British Medical Journal, 2005. **331**(7523): p. 1002-1005.
10. Michielsen, J., et al., *Can health insurance improve access to quality care for the Indian poor?* International Journal for Quality in Health Care, 2011. **23**(4): p. 471-486.
11. WHO, *People-centred Care in Low Middle Income Countries*. 2010, World Health Organization: Geneva.
12. Johri, M., F. Beland, and H. Bergman, *International experiments in integrated care for the elderly: a synthesis of the evidence.* International Journal of Geriatric Psychiatry, 2003. **18**(3): p. 222-35.
13. ITM, *Maternal health regulations in Vietnam, India and China. A comparison across case studies and countries.* 2012, Institute of Tropical Medicine: Antwerp.
14. Lewis, R.Q., et al., *Where next for integrated care organisations in the English NHS?* 2010, The Nuffield Trust: London.
15. Visschedijk, J., et al., *Leprosy control strategies and the integration of health services: an international perspective.* Cadernos de Saude Publica, 2003. **19**(6): p. 1567-81.
16. Kabatereine, N.B., et al., *How to (or Not to) Integrate Vertical Programmes for the Control of Major Neglected Tropical Diseases in Sub-Saharan Africa.* PLoS Negl Trop Dis, 2010. **4**(6): p. e755.
17. Theobald, S., et al., *Close to community health providers post 2015: Realising their role in responsive health systems and addressing gendered social determinants of health.* 2014, Centre for Applied Health Research & Delivery Liverpool.
18. Aggithaya, M.G., et al., *Self care integrative treatment demonstrated in rural community setting improves health related quality of life of lymphatic filariasis patients in endemic villages.* Acta Tropica, 2013. **126**(3): p. 198-204.
19. Green, L.W. and R.E. Glasgow, *Evaluating the Relevance, Generalization, and Applicability of Research: Issues in External Validation and Translation Methodology.* Evaluation and the Health Professions, 2006. **29**(1): p. 126-153.