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Benefits and Drawbacks of learner handover: A Scoping Review

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ABSTRACT

Introduction: Learner Handover (LH), modelled after Patient Handover Protocols, is the act of collecting data regarding different aspects of student performance, highlighting their strengths and weaknesses so that it can be presented to future teachers as an added aide in planning their teaching activities. It has recently gained popularity due to its application in Competency-Based Medical Education (CBME). This scoping review aimed to consolidate current knowledge regarding the usage, benefits and drawbacks of Learner Handover and to highlight areas for future research.

Method: The Arksey and O'Malley framework was used to systematically select and summarize the literature available. Articles relevant to Medical Education were selected from searches of two databases and one search engine. Only articles published after 2017 to ensure the most recent developments were accounted for. Data was analysed thematically and quantitatively.

Results: Out of the 12 articles reviewed, 46% usage of the Learner Handover revolved around smoothening out the UGME-PGME transition. 39% studies focused on the assessment of students and talked about the use of Learner Handover as a teaching aide. The most common benefits were a) Tailored Learning Environment, b) Programme Preparedness, and Improved Patient Safety whereas the drawbacks most mentioned revolved around a) Generation of bias, b) Resource intensiveness, and c) Breach of confidentiality.

Conclusion: Learner Handover is a multifaceted process that provides performance information to future faculty, establishing a continuum that can map out the longitudinal improvements of medical students. However, there are major drawbacks – like generation of academic bias and breach of confidentiality - that need to be controlled. Additional research is needed to fully understand the efficacy of the benefits and the extent of the drawbacks. However, in the Competency-Based Educational Model, a well-designed Handover Protocol may prove integral.

KEYWORDS: Learner Handover, Competency-Based Medical Education, Prior Performance Indicators, Forward Feeding

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INTRODUCTION

Learner Handover, modelled after Patient Handover, was first suggested by Warm et al., (2017) (Warm, Englander, Pereira, & Barach, 2017)as a means to improve clinical teaching between clerkships by encouraging faculty to work together to pre-emptively identify areas of weakness and strengths of the trainees. This information can then be used to tailor their experiences accordingly. The suggested CLASS model (Competency attained, Learner Performance, Action List, Situational Awareness, and Synthesis) allowed for different institutes to create their own Learner Handover. Since then, this concept has garnered interest internationally due to its potential application in Competency-Based Medical Education (CBME) and providing additional insight into the incoming postgraduate trainees' competency levels.

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However, this has led to ambiguity regarding what Learner Handover entails. Moreover, since this is a new area of interest, there are a lot of unknown facets to it and the quantity of research available is limited. Therefore, a scoping review was done to consolidate the available information and identify existing knowledge gaps. The study aims to answer the simple question of 'How is Learner Handover currently being used in Health Professions Education and what are the known and perceived benefits and pitfalls of adopting it?'

METHOD

A Scoping Review using the Arksey and O'Malley framework (Arksey & O'Malley, 2005) was carried out. One search engine (google scholar) and two databases (PubMed and ERIC) were used to search for relevant articles. Boolean Operators were used narrow down search results. Due to the nature of 'Learner Handover' being a relatively recent topic of interest, only articles from the past 5 years (2017 – 2021) were included and all searches had appropriate filters applied to the search results to keep them relevant.

Articles dealing with non-medical fields, not in the English language, and of unrelated topics were excluded from the review. The related terms 'Prior Performance Information' and 'Forward Feeding' were included in the study along with articles dealing explicitly with Learner Handover.

The final selection of articles were then reviewed and information gathered into three headings:

1. Use of Learner Handover
2. Benefits
3. Drawbacks

These headings formed the parent themes under which all coding was categorised. Their relationship is shown in Figure 1.

Apart from research articles, Theme 9, Post MD Education manual of University of Toronto (Takahashi, Nayer, & Amant, 2017) was also consulted for additional insight.

The process is delineated in the PRISMA flowchart (Figure 2).

The final results were consolidated after a thematic and quantitative analysis and any additional points of interest were added as well (Table 1). The thematic analysis was done manually for the iterative development of the coding scheme and addition of search terms for identifying new articles. The quantitative analysis included the frequency of occurrence of the final themes.

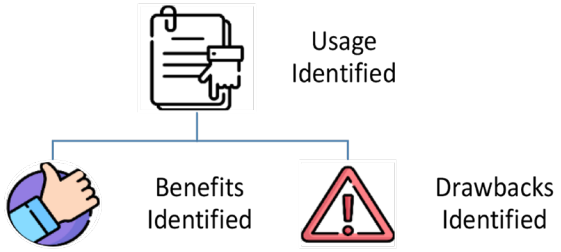

Fig I: Relationship between Parent Themes

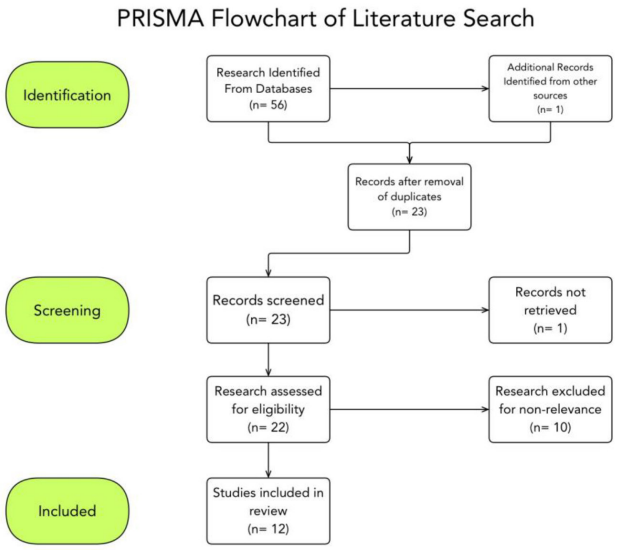

Fig II: PRISMA Flowchart describing the selection process during literature search for the review

Table I : Summary of the Research Articles reviewed

Year	Study	Usage	Benefits	Drawbacks
2017	Improving learner handover in medical education. (Warm et al., 2017)	Teaching Aide Assessment UGME-PGME transition	Tailored Learning Environment Improve Patient Safety Maintain educational continuum	None Reported
2017	Responsible Milestone-Based Educational Handover with Individualized Learning Plan from Undergraduate to Graduate Pediatric Medical Education (Schiller et al., 2017)	UGME-PGME transition	Tailored learning environment Increase preparedness of programme	Resource-intensive
2018	Smoothing the transition points in Canadian Medical Education. (Busing et al., 2018)	UGME-PGME transition	Maintains the educational Continuum	Resource-Intensive Difficult to bring different institutes with different cultures onto the same page

2018	Program Directors' perceptions of a post-match contemporary handover between Medical School and Residency. (Morgan et al., 2018)	UGME-PGME transition	Increase preparedness of programme	Difficult to bring different institutes with different cultures onto the same page
2019	The Influence of Prior Performance Information on Ratings of Current Performance and Implications for Learner Handover: A Scoping Review (Humphrey-Murto et al., 2019)	Assessment	Tailored Learning Environment	Create Bias (Assimilation Effect)
2019	Key stakeholder opinions for a national learner educational handover. (Kassam et al., 2019)	UGME-PGME transition	Maintains the educational Continuum Tailored learning environment Improve Patient Safety Increase preparedness of programme	Create Bias Resource-intensive Breach of Confidentiality Misuse of Information
2019	Forward Feeding in Graduate Medical Education: Results of a National Survey (DeCastro et al., 2019)	Teaching Aide	Early Identification of struggling students Tailored teaching to learner needs Improved feedback Progressive, longitudinal evaluation Efficient time management	Create Bias Breach of Confidentiality Misuse of information Unproven benefit Fear of litigation
2020	Learner Handover: Perspectives and recommendations from the front-line. (Gumuchian et al., 2020)	Assessment	Tailored Learning Environment Improvement to Assessment process Improve Patient Safety	Create Bias (Questionable validity of subsequent assessment Breach of Confidentiality Influence student's future prospects)
2020	A responsible educational handover: Improving communication to improve learning. (Morgan et al., 2020)	UGME-PGME transition	Tailored learning environment Increase preparedness of programme	Resource-intensive

2021	Learner Handover: Who is it really for? (Humphrey-Murto et al., 2021)	Teaching Aide	Tailored Learning Environment Improve Patient Care Alleviates Faculty Insecurities by corroborating observations regarding students Efficient Time Management	Create Bias (inappropriate locking of expectations)
2021	How biased are you? The effect of prior performance information on attending physician ratings and implications for Learner Handover. (Shaw et al., 2021)	Assessment	Not Assessed	Create Bias (Assimilation Effect)
2021	Does Educational Handover Influence Subsequent Assessment? (Dory et al., 2021)	Assessment	Targeted Feedback	Create Bias (No Effect)

RESULTS

Out of the 12 articles reviewed, 5 were based around perspectives of various stakeholders, and 3 tested bias generation. Only one article proffered recommendations to conducting Learner Handover for an Undergraduate to Postgraduate Medical Education (UGME-PGME) transition,(Morgan et al., 2020) and one proposed and executed a Learner Handover pilot study for the Undergraduate to Postgraduate Medical Education transition. (Schiller et al., 2018) Table I summarises the findings from the review and Table II enlists the suggested recommendations by Morgan 2020. A scoping review published in Academic Medicine Journal did attempt to probe into the effects of Forward Feeding performance information.(Humphrey-Murto et al., 2021) However, most of the research reviewed was sourced from varying – including non-medical – fields.

Most authors treat 'Learner Handover' as part of a compendium of terminology that includes 'Prior Performance Information', 'Educational Handover', and 'Forward Feeding'. As defined by the Post MD Education Manual: "Learner Handover is the process to be used at the end of an educational experience (e.g. shift, rotation, year) by which one educator and/or educational setting (e.g. instructor/supervisor/rotation lead/facility) provides information to the next (e.g. instructor/supervisor/rotation lead/facility) about the learner's strengths, limits and about priority areas that need further work, additional supervision or other adjustments to the education" (Takahashi et al., 2017).

However, different authors described it with different additional nuances, depending on their area of interest.

The most prevalent usage of the Learner Handover revolves around smoothening out the UGME-PGME transition(Busing et al., 2018; Kassam et al., 2019; Morgan et al., 2018; Schiller et al., 2018) at 46% and the assessment of students(Dory et al., 2020; Gumuchian et al., 2020; Humphrey-Murto et al., 2021) at 39% of the studies reviewed. Use as a teaching aide to help faculty modify their teaching to the student's learning needs was also mentioned as an important utility of Learner Handover by 15% of studies (DeCastro et al., 2019; Humphrey-Murto et al., 2021). Figure III shows the percentage of studies that focused around specific uses of Learner Handover.

Schiller et al., (2017) suggested using a Milestone-Based

Table II : Recommendations for developing an UGME-PGME transitional handover

	Five Recommendations for developing a UGME-PGME Transitional Handover
○	The purpose of the educational handover should be to provide medical school performance data to guide continued improvement in learner ability and performance
○	The process used to create an educational handover should be philosophically and practically aligned with the learner's continuous quality improvement
○	The educational handover should be learner-driven with a focus on individualized learning plans that are coproduced by the learner and a coach or advisor
○	The transfer of information within an educational handover should be done in a standardized format
○	Together, medical schools and residency programs must invest in adequate infrastructure to support learner improvement

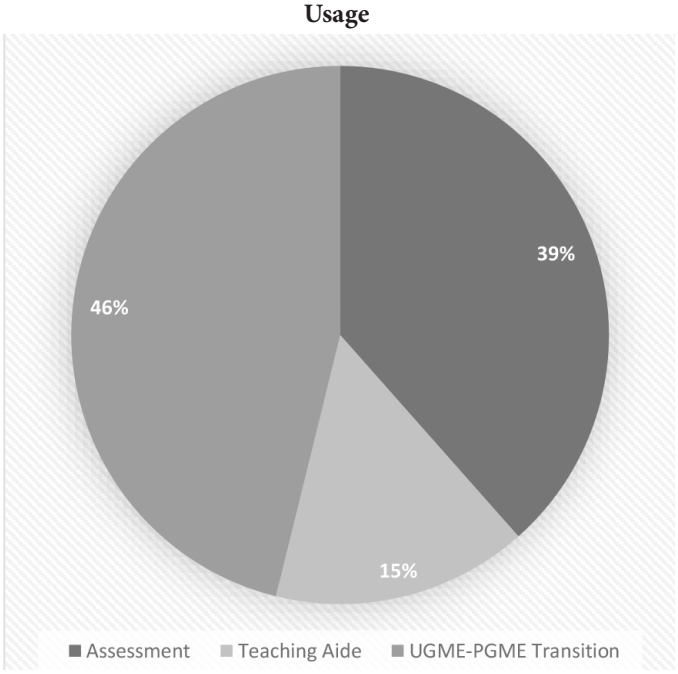

Fig III : Common perceived and studied usage of Learner Handover.

Handover with an Individual Learning Plan (MH-ILP) for paediatric trainees. The research showed that the MH-ILP approach provided better descriptions of the trainee competencies and could be used to improve programme preparedness and training. However, it was only moderate useful in describing characteristics of trainees. The benefits most touted by the studies reviewed included the improvement of patient safety as a result of students being directed to clinical conditions they are most ready for, as well as the ability to modify teaching plans to cater to the needs of the students. However, the risk of generating a bias during assessment or influencing the future prospects of the students were also stated as a major concern which mitigated the enthusiasm of stakeholders from adopting Learner Handovers.

Smoothening of the Undergraduate to Postgraduate Medical Education (UGME-PGME) to maintain an educational continuum(Busing et al., 2018; Kassam et al., 2019; Warm et al., 2017) was another benefit mentioned by most studies. However, Morgan (2018) and Schiller (2017) reported a negligible to minor benefit of using Educational Handover Information over other methods of trainee descriptors. Other benefits cited include an increase in effective time management, course preparedness, and patient safety due to the related benefit of early identification of struggling students. This would enable them to receive targeted feedback and special attention towards their weaknesses before such shortcomings cause complications with patients.

Figures IV and V show the overview of the benefits and drawbacks mentioned in the reviewed articles.

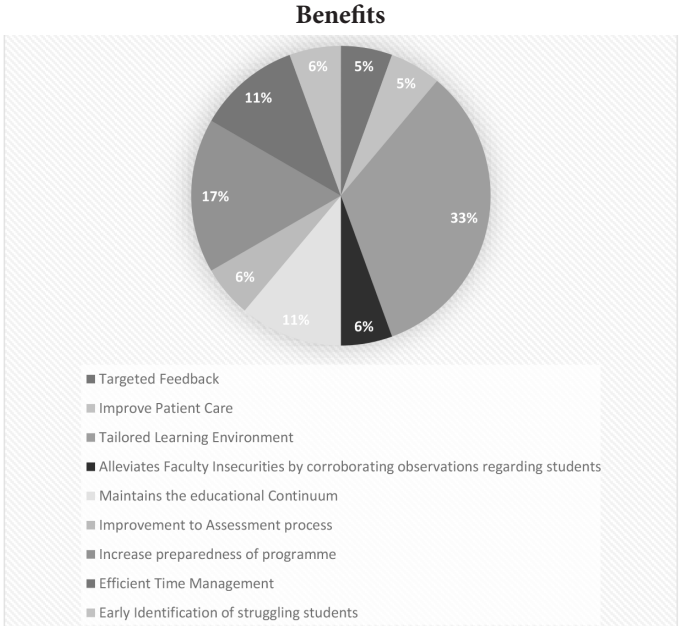

Fig IV : Common perceived and studied benefits of Learner Handover.

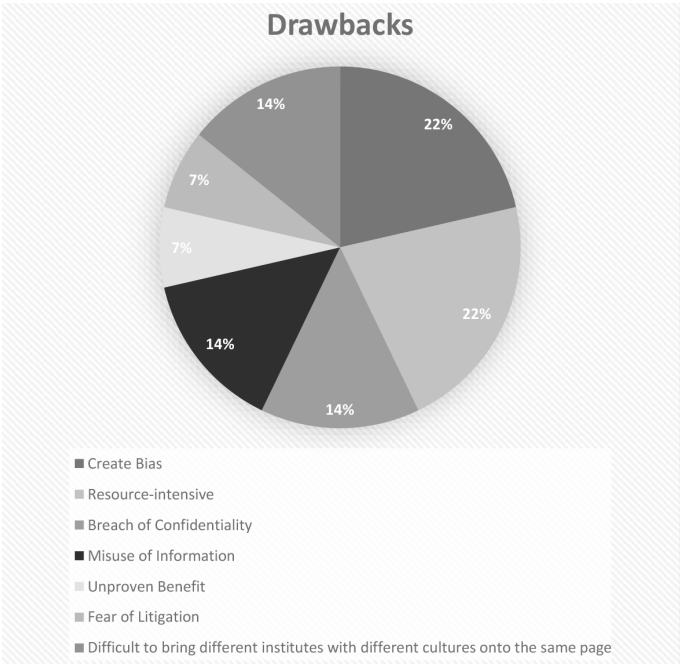

Fig V : Common perceived and studied benefits of Learner Handover

DISCUSSION

The review showed that many authors felt the need to smoothen the medical education transition from less to more specialised training and most Canadian-centric research work was based around either the UGME-PGME transition or Residency programs(Busing et al., 2018; DeCastro, Mims, Stephens, & Chessman, 2019; Gumuchian et al., 2020; Kassam et al., 2019; Morgan et al., 2018; Schiller et al., 2018). This could be because of the stance by the Canadian government and the recent trend towards Competency-Based Medical Education. However, because insights and opinions from other parts of the world are

rare, there is a lack of diversity in opinion.

Bias and confidentiality are the two biggest student-related issues raised by most authors (Humphrey-Murto et al., 2021; Kassam et al., 2019; Shaw, Wood, Touchie, Pugh, & Humphrey-Murto, 2021). However, there is a lack of evidence regarding the long-term effects of such bias, as well as no research that probes into the nature and extraneous factors influencing the biases generated. The concern regarding confidentiality seems to be borne out of the related fear of litigation. However, it is difficult to justify such a fear when doctors are expected to responsibly manage sensitive information for a living. A method to ensure confidentiality, consent, and appropriate use of information should be established to protect the rights of the students while retaining the benefits of the formative nature of learner handover and the aid it can provide in tailoring the training to the student's needs.

However, most of the benefits of learner handover seem to hinge upon two major considerations: a) The resources and infrastructure available and b) efficiency of the institution's faculty development programme (DeCastro et al., 2019; Mims, DeCastro, & Kelly, 2017; Morgan et al., 2020). As multiple studies rightfully highlighted, the entire learner handover process requires commitment in terms of personnel, time, money, and space. If an institute cannot arrange for all the prerequisites, then their learner handover is doomed to fail.

Unfortunately, very little research seems to be directed towards undergraduate medical education and virtually no research article was found that considered the perspective of dental training.

Dentistry lends itself very well to the application of a learner handover system to help evaluate the mastery of technical skills, patient management, and communication skills needed at even the undergraduate level. Further research could delve into the requirements for a learner handover for dental training. The evaluation and improvement of learner handover, as well as requirements of the additional training required for faculty to carry out learner handover that can mitigate the drawbacks is also an area where research is non-existent.

CONCLUSION

Learner Handover is a multifaceted process that can be used for formative assessment, targeted feedback, improvement in training, and can save faculty time and resources by pre-planning for their incoming trainees. By providing performance information to future faculty, a continuum can be established that can map out the longitudinal improvements of medical students. However, there are major drawbacks – like generation of academic bias that may create a 'self-fulfilling prophesy' for a student, and breach of confidentiality - that need to be controlled. Additional research is needed to fully understand the efficacy of the benefits and the extent of the drawbacks. However, in the Competency-Based Educational Model, a well-designed Handover Protocol may prove integral.

DECLARATION OF INTEREST

The author report no declaration of interest.

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AUTHOR CONTRIBUTION

Dr. Mehvish Shahid. Confirms the responsibility of methodology, review, result and discussion.