Larjow, Eugenia

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Administrative costs in health care—A scoping review

Eugenia Larjow

Department of Health Care Management, Institute of Public Health and Nursing Research, Faculty of Human and Health Sciences, University of Bremen, Grazer Straße 2a, 28359 Bremen, Germany

1. Introduction

Some of the typical statements surrounding administrative activities in health care include complaints about too much time doctors and nurses are spending with activities outside patient care. These activities include, for instance, filling out paperwork, tasks related to the implementation of new rules, or worrying about payers' additional requests on billing information. In this context, bureaucracy and rising health care administration costs are a matter of continuous debate in health policy and health services research [1,2]. However, a closer look reveals that both, the concept and the level of health care administration costs are actually unclear.

Administrative costs (AC) in health care are usually associated with resource use for non-patient contact activities. Despite the functional purposes of these activities (see Table 1), health care practitioners and experts often refer to them in public discussions as a wasteful task group [3,4]. This argumentation is usually connected with the intention to highlight an imbalance between administrative requirements and reimbursed time left to carry out the original health care work. Consequently, such complaints indicate demands to restructure actual regulatory policies – either at the level of administrative requirements or at the reimbursement level. The development of appropriate alternatives first and foremost requires a clarification of following aspects: (1) how are administrative tasks defined; (2) how much resources do they consume; (3) how to distinguish between appropriate from inappropriate administrative activities, and what are the costs of both; and finally, (4) how to assess the tolerable volume of AC?

For the first two issues, several approaches exist. The System of Health Accounts (SHA) by the Organization for Economic Cooperation and Development (OECD) suggests how to operationalise administration from an economics perspective. Following the main distinction between health care functions, health care provision, and financing schemes OECD-countries estimate their expenditures related to predefined administrative cost categories [5]. The assignment to administrative functions as defined by OECD is guided by transaction-related emphasis on public and private expenditures for health care provision represented by the question "from whom to whom" [6]. For non-OECD countries, the World Health Organization (WHO) coordinates a similarly structured reporting system which compiles health care expenditures

E-mail address: larjow@ipp.uni-bremen.de

Table 1
Administrative functions and related activity types in health care sectors of the U.S. Health Care System.[a]

Function/component	Health insurance	Hospitals	Nursing homes	Physician	Firms	Consumers/individuals
Transaction-related	Claims processing	Admitting, billing	Admitting, billing	Billing	Tracking employee hires/terminations	Submitting claims
Benefits management	Statistical analysis, quality assistance, plan design	Management information system	Management information system	Management information system	Internal analyses	Tracking expenses eligible for reimbursement
Selling and marketing	Underwriting, risk/premiums, advertising	Strategic planning, advertising	Strategic planning	Advertising	Flexible benefit programs	Search costs
Regulatory/compliance	Premium taxes, reserve requirements	Waste management	Discharge planning	Licensing requirements	Filling summary plan description, *(adapted by author:)* employer obligations	Mandated benefit laws

[a] Source: Thorpe 1992, p. 43 [3].

as National Health Accounts (NHA) [7]. Both estimating strategies attempt to harmonise the information on financial flows in health care. Due to the consistent classification, the associated databases enable cross-national comparisons of AC. Still, comparisons should be focused on countries with similar health care system designs [3,5,8]. The macro-understanding of SHA/NHA captures costs being required by the function "governance, and health system and financing administration" as well as by classified agencies who are responsible for administering and financing. Yet, the reporting structure does not indicate AC of public health services, nor the AC of health care providers if administration is not the primary goal of their goods and services. Hence, only less structured advice can be derived from OECD guidance on the definition and the monetary amounts of administrative tasks for system participants without regulatory or policy mandates [5]. However, fragmented examples of provider related definitions of administrative tasks are routine procedures such as completing and updating patient records, or paperwork for consumers; administrative activities of preventive services might relate to programme design, monitoring and evaluation [6].

Especially from the perspective of providers or local agencies, analyses of country-specific health monitoring data enhance the understanding of national trends and strategies in dealing with given administrative standards and regulatory mechanisms. Examples of national provider data, as defined in this study, are Medicare and Medicaid reports, American Medical Association's (AMA) surveys, as well as restricted-use files provided by research centres or consulting companies. These sources include additional information that extends the understanding of AC as they expand the view beyond summaries of monetary flows. Additional information is, for instance, hours worked in hospital departments separated by cost centres such as data processing, editing of patient accounts and admissions, or nursing management [9,10]. Such details are not found in highly aggregated financial summaries being designed for international comparisons. Furthermore, some national sources enable qualitative insights into the consequences of administrative circumstances. This is illustrated, for example, in a study by Woolhandler and Himmelstein [11]. The authors monitored practitioners' perceptions of working conditions related to administrative resource usage based on restricted-use data from Health Tracking Physician Survey, which was maintained by the Robert Wood Johnson Foundation.

As a further framework, the concept of regulatory compliance costs assessment focuses on the measurement of excessive administration. This approach has been developed and refined in OECD countries in recent years [12]; it addresses primarily the latter function displayed in Table 1. The idea of this approach is to systematically quantify administrative burdens caused by national legislation. Subsequently, compliance cost and regulatory impact assessment should provide guidance on how to remove burdensome and unnecessary regulations or, at least, how to simplify them [13,14]. The basic methodology of this approach is called Standard Cost Model (SCM) [15,16]. The core element of this framework is the definition of administrative activities as legal duties to procure or to compile information, and to make it available either to public authorities or, more generally, to third parties. Relevant activities comprise, for instance, familiarising oneself with the regulatory requirements, identifying compliance options, procuring required equipment, staff training, record-keeping, or transmitting and publishing data [17]. Thus, AC are defined as compliance costs which include the total measureable time expenditure and the costs incurred by citizens, business and public authorities in order to comply with legislation [18]. The Federal Statistical Office of Germany provides some examples of SCM framework use for studying selected health care processes [19,20]. Still, the concept does not offer an advice how to distinguish between tolerable and excessive compliance costs, but it suggests to employ the systematic approach for choosing the more simple strategy to accomplish with regulations.

The final research concept presented in this study is based on the process-related identification of administrative items. Here, researchers inductively define administrative functions and tasks, and break observed administrative processes up into smaller components. As a result, tailor-made surveys provide reliable findings on AC amounts strongly related to the study subject. They also afford insights into the involvement of several professions actually needed to cope with selected administrative requirements within an organisation [21–23]. This procedure seems to be less vulnerable to misleading interpretations of costs that might occur during the utilisation of AC information being originally collected for different purposes. Studies which employ self-defined methodologies and related questionnaires enable to consider additional issues of administrative tasks because of their independence from standardised reporting frameworks. Hence, they could potentially also suggest indications for complementary assessments of the tolerable AC volume.

To the best of the author's knowledge, neither information about frequency of use, nor advice about the most suitable concept for the AC terminology in particular health care sectors are available up this date. Thus, a literature review was carried out to evaluate the usability of several concepts in health care research. The review was guided by the research question: What is known about the methodology of AC in health care research from scientific publications?

2. Methods

To address this question, a scoping study was conducted. This review technique aims to map rapidly the key concepts of research areas [24]. It helps to identify the main sources and types of avail-

able evidence, especially where an area is complex or has not been reviewed comprehensively before. In contrast to a systematic review that aims to provide answers to questions from a relatively narrow range of quality assessed studies, a scoping study is less likely to seek to address very specific research questions nor to assess the quality of included studies [25–27]. Also, the scoping strategy was selected for the presented work since it addresses broader topics where many different study designs might be applicable.

2.1. Search and study selection

Following the recommendation by Arksey and O'Malley on conducting scoping reviews [25] a broad approach was firstly made by selecting and connecting the following search terms (PubMed example): "administrative costs"[All Fields] OR ("billing"[All Fields] AND "insurance-related"[All Fields]) OR "regulatory costs"[All Fields] OR "compliance costs"). No further term limitations were considered as it was ascertained that synonyms would provide too multitudinous results. For instance, the term *management* was excluded from the search strategy to reduce overlapping with both, articles on disease-management and leadership issues. In contrast, the above mentioned terms which consider transaction related functions were included, as the preliminary search indicated the use of the particular wording. Neither publication date, nor publication types were restricted aiming to cover a wide range of material. Identification of relevant studies was carried out by screening the electronic databases PubMed, EconLit, and Business Source Premier. The search was performed by the author, and it was updated on July 9, 2018. The full search strategies as adapted to selected databases are available on request to the author.

2.2. Eligibility criteria

Based on the research question, the inclusion criteria for identified publications was defined as follows:

- definition of AC provided; this criterion was assumed to be fulfilled if activities, functions or terminological references were mentioned additionally to the term AC itself
- quantified results in monetary terms (including quasi-monetary results such as time amounts that can be converted into budgets, and percentage of total expenditures)
- original articles
- non-disease-related studies

Two researchers applied the selected criteria on titles and abstracts of the retrieved studies. In case that titles or abstracts did not provide clear information whether inclusion criteria were met or not, they were automatically included into the second stage of screening, i.e. full text review.

2.3. Data extraction

Eligible literature was classified by general information such as time horizon, and region. Further information was extracted against an extended framework. Framework categories were oriented towards selected items for the reporting of economic evaluations of health interventions. Table 2 presents the eleven categories, their characteristics, and the assignment to comparable items from the Consolidated Health Economic Evaluation Reporting Standards checklist [28]. Data extraction was performed by the author.

3. Results

Even though AC are considered to be one of the factors with influence on health care expenditure trends [29], it seems that only a few studies integrate this type of resource usage into their original research scope. These works provide evidence-based insights into the characteristics of administrative activities as outlined in more detail in the following sections.

3.1. Search results

The search strategy resulted in 799 references being screened for defined eligibility criteria on title and abstracts. Ninety-five articles were included in full text analysis, and 36 studies were finally identified to provide information how to operationalise resource use caused by administrative activities in health care. Fig. 1 shows the selection process.

3.2. General characteristics

Studies addressing AC issues in health care pursue various research questions. Despite multifaceted emphases on AC aspects, specific areas were pointed out by more than one study: six studies addressed the impact of health insurance designs on the AC amount [2,8,30–33]; further six out of 36 studies examined the principles and amounts specifically limited to billing and insurance related activities as a particular element of AC [23,34–38]; two studies observed AC in the context of health practitioners' education [39,40]. The identified studies either mainly focused on the providers' (n = 20) or on the health care system's perspectives (n = 8). Four studies put emphasis on both matters. Accordingly, 24 publications considered the providers' situation. Among these, the most frequently observed provider sector were hospitals (n = 14) [9,10,23,34,37,38,41–48], followed by outpatient care settings (n = 13) [11,21,22,34–37,41,45,48–51], and nursing homes (n = 5) [34,41,45,48,52]. One study focused on AC for pharmacies [53]. Five publications included more than just one health care area within the scope of their research. Four publications were classified to take the perspective of science and education within the overall health care sector [30,39,40,54].

The category *study design* displayed in Table 2 presents the main characteristics of the allocated research designs. No preferences could be identified between the selection of a case study (n = 8), the longitudinal (n = 7), or the cross-sectional (n = 7) approach for AC estimations in a single country. In total, ten publications made comparisons between AC of different nations either using a cross-sectional approach [22,33,34,45,48], or a longitudinal design [2,8,10,41,55]. The timespan being observed in the longitudinal studies ranges from 1968 to 2017. Almost half of the publications compared AC at least between two annual periods (n = 16). Five studies did not provide any time reference. Two studies were classified to follow a modelling approach since the authors developed cost estimation models and controlled several inputs of administrative costs as depending variables [38,56]. Additionally, one study fulfilled the inclusion criteria, but was classified as a literature review because the authors based their AC analysis on results from different original studies [40]. A further study was categorised as a feasibility study [51].

3.3. Definition concepts

According to the definition concepts of AC being used by authors to analyse the multifaceted research questions, applications of all four approaches can be identified. The majority (n = 18) of the selected publications was guided by definitions of administrative activities as summarised in national provider data. Eleven stud-

Table 2
Extended framework categories.

Category	Comment	Comparable to CHEERS checklist item number [27]
Study question	Identifies assumed comparators or influence factors of the expense category administrative costs (AC)	7
Perspective	Indicates health care parties, estimated administrative costs are allocated; subdivided into • health care system (including health insurance fund administration, Health Management Organisations, health plan providers, private health insurance; social security scheme) • provider (for instance hospitals, practitioners, nursing homes) • patients	6
Study design	Describes especially the original scope of derived results • Case study: pertains, for instance, to as single district, federal state, or medical speciality • Cross-sectional study: AC of one single country for one particular time point • Longitudinal study: AC of one single country for two or more time points • Cross-country comparative cross-sectional study: AC of two or more nations in comparison for one particular time point • Cross-country comparative longitudinal study: AC of two or more nations in comparison for two or more time points • Modelling study: cost modelling by set up and check cost formulas	4; 5
Cost identification	Administrative activities or AC were captured based on the definition concept of the • System of Health Accounts (SHA) • National provider data • Standard Cost Modell (SCM) • Different conceptual approach (categorisation of activities/costs without reference to the aforementioned concepts)	n/a
Data source	All reported data sources being used in selected study to achieve results	13
Resource usage measurement	If applicable, physical units that were used to estimate resource usage as well as individual-related parameters; selection of this category does not exclude further monetary values being additional summed to calculate total results	13
Resource usage valuation	The price or amount of defined cost items; for some studies, this information was derived from the original result section	14
Results	Quantified annual costs; reported as a range if appropriate	18; 19; 21
Unit	Describes reporting unit AC data were being converted to	18
Sample size	Database for extrapolation	12
Complementary analyses	Additional qualitative category to express whether studies have connected expenditures for administration with additional health care measures; to avoid misleading conclusions and because benefit analysis was out of scope of this review, only applicability is reported here	10

ies referred to self-developed conceptual frameworks, and four of those defined AC as expenses for teaching and communication materials such as paper, catering, and further equipment. Six studies were based on AC classifications by SHA/NHA. Only one study referred to the SCM concept [51]. The allocation to applied concepts was guided by reported data sources; detailed information about data sources is available in the supplementary annex.

3.4. Measurement characteristics

Several results were extracted from the identified publications considering devices to determine resource usages as required by administrative tasks. For the calculation of AC, about a quarter (n = 10) of the studies relied on primary data. The majority (n = 21) mainly used secondary data while some of them (n = 5) featured with both data types. Latter ones used primary data especially for the development and validation of suggested analytical categories.

Table 3 displays the application of physical AC characteristics being used in selected studies. Time for pre-defined administrative tasks was the most frequently used resource measurement type followed by the amount of administrative staff, and the number of patients addressed by health care services. For 15 out of 36 studies resource measurement categories were not recorded.

With regard to the reported prices for selected cost measurement items, no preferences could be identified. Table 4 illustrates the heterogeneity in cost valuations derived from studies focused on the health care provider sector. For example, Woolhandler's et al. figures start from $13 per capita for administrative issues in Canadian's home care agencies in 1999 [48], while Ly and Glied report additional 0.28 percentage points of extra time outside patient care for physicians by moving from one to twelve managed care contracts extra [49], and Sakowski et al. estimate $7665 associated spending per FTE physician for service review and authorisations of procedures, referrals, and inpatient level of care [36]. Information about further valuation parameters is available as supplementary appendix file.

With regard to the presentation of total results and the specification of the resource consumption due to administrative tasks, publications guided by the SHA definition tend to report their results as a share of a nations' total expenditures. In studies which referred to the AC definitions of national provider reports, the predominant total result category was the relative share of total monetary amounts such as revenues, or annual hospital expenditures. Analyses that employed an original definition framework often reported their findings in time amounts as well as in converted US dollars. The micro-level data of those studies enabled more specified findings; authors who followed self-developed concepts of AC were also able to report their results as costs per day or per person.

3.5. Cost assessment

Regarding the third and fourth raised question for the purpose of this study (i.e. how to distinguish between useful and wasteful AC and how to assess them), eleven studies were classified to report findings from complementary analyses. In these pub-

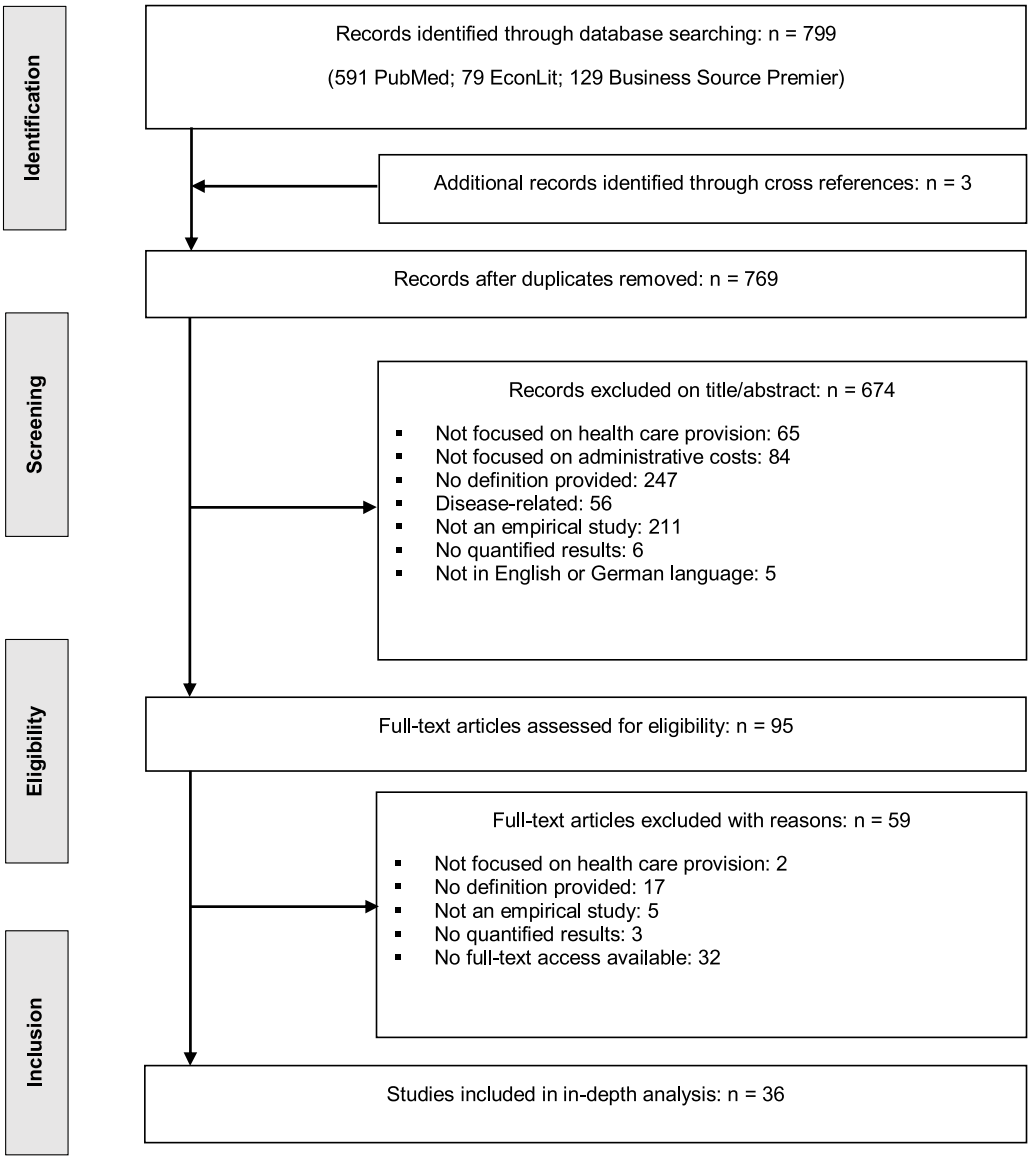

Fig. 1. Flow diagram – the scoping review studies selection.

Table 3
Resource usage measurement categories for the calculation of annual administrative expenditures.

Resource usage measurement	Category	Number of publications	Author(s), year
Time	Minutes and/or hours worked outside patient care in selected time period; minutes and/or hours allocated to particular administrative unit	7	Tseng et al., 2018 [23]; Borghi et al., 2015 [30]; Woolhandler & Himmelstein, 2014 [11]; Morra et al., 2011 [22]; Casalino et al., 2009 [21]; Remler et al., 2000 [50]; Woolhandler & Himmelstein, 1991 [45]
	Share of total time or percentage of a defined task unit for administrative activities	5	Ly & Glied, 2013 [49]; Chandra et al., 2011 [38]; Luna et al., 2009 [35]; Woolhandler et al., 2003 [48]; Remler et al., 2000 [50]
Staff	Number of employees (also FTE) in absolute terms	5	Chandra et al., 2011 [38]; Luna et al., 2009 [35]; Sakowski et al., 2009 [36]; Himmelstein et al., 1996 [41]; Cromwell & Butrica, 1995 [9]
	Share of employees (also FTE) for administrative tasks	2	Woolhandler et al., 2003 [48]; Remler et al., 2000 [50]
Individual measurement	Per capita; per insured person; per admission; per discharges; per study participant; per practitioner's office	9	Tseng et al., 2018 [23]; Himmelstein et al., 2014 [10]; Albrecht et al., 2013 [51]; McKay, 2008 [44]; Woolhandler et al., 1997 [47]; Cromwell & Butrica, 1995 [9]; Carpenter, 1995 [40]; Poullier, 1992 [7]; Woolhandler & Himmelstein, 1991 [45]
Other measurements	Number of contracts; number of health plans	2	Ly & Glied, 2013 [49]; Luna et al., 2009 [35]
	Allowances; supplies; transport costs; equipment	2	Borghi et al., 2015 [30]; Sakowski et al., 2009 [36]
	Share of total costs	2	Kahn et al., 2009: [37]; McKay, 2008 [44]

Table 4
Reported resource usage valuations and total results for administrative expenditures in studies based on the national providers' data and focused on the health care providers' perspective.

Author(s), year	Resource usage valuation	Quantified total results
Himmelstein et al., 2014 [10]	$158 (CAN)–$667 (USA) per capita	• 11.59% (Scotland)–25.32% (USA) of total hospital costs • 0.41% (CAN)–1.43% (USA) of GDP[a]
Jiwani et al., 2014 [34]	n/a[b]	$873.1 bn (hospitals)–$938.8 bn (other health services and supplies) of national health expenditures for BIR[c]
Ly & Glied, 2013 [49]	additional 0.2755 percentage points or 10 minutes per week more by moving from 1 to 12 contracts	15% of total physicians' work time
Woolhandler & Himmelstein, 2014 [11]	n/a	• 7 h–14.4 h per week • 13.4%–27% of total physicians' working week
Himmelstein et al., 2010 [42]	n/a	−$4764 to −$243 as total cost parameter estimate in multivariate models
McKay et al., 2008 [44]	$1168 (in 2000)–$1323 (in 2004) per adjusted admission	$21,728,107 (in 2000)–$27,857,304 (in 2004)
McKay & Lemak, 2006 [43]	n/a	• $27,246,554 total AC[d] • 2.9%–75.8% of total AC distributed to AC classes
Kahn et al., 2005 [37]	6.6%–13.9% BIR of total revenue	6.6% (hospitals)–13.9% (physician groups) BIR of total revenue
Mukamel et al., 2005 [52]	n/a	$1.66 m (in 1991)–$2.48 m (in 1996)
Woolhandler et al., 2003 [48]	• hospital administration: $103 (CAN)–$315 (USA) per capita • nursing home administration: $29 (CAN)–$62 (USA) per capita • practitioners' AC: $107 (CAN)–$324 (USA) per capita • home care agencies' AC: $13 (CAN)–$42 per capita • total: $307 (CAN)–$1059 (USA) per capita	• share of health care labor force (in 1999): 16% (CAN)–27.3% (USA) • hospital administration: $3.1 bn (CAN)–$87.6 bn (USA) • nursing home administration: $882 m (CAN)–$17.3 bn (USA) • practitioners' AC: $3.3 bn (CAN)–$89.9 bn (USA) • home care agencies' AC: $408 m (CAN)–$11.6 bn (USA) • total: $9.4 bn (CAN)–$294.3 bn (USA)
Remler et al., 2000 [50]	• 7.9 h per week • 13% of total working hours • 1.7 clerical workers per physician	incremental effects on probability of use
Woolhandler & Himmelstein, 1997 [47]	• $205 (CAN)–$396 (USA) adjusted administrative costs per inpatient day • $1432 (CAN)–$2289 (USA) per discharge	• 24.3% (CAN)–37.5% (USA) of total hospital costs • $205 (CAN)–$396 (USA) per inpatient day • $1432 (CAN)–$2289 (USA) per discharge
Himmelstein et al., 1996 [41]	n/a	18% (CAN)–26% (USA) administrative occupations of medical FTEs[e]
Cromwell & Butrica, 1995 [9]	$29 per adjusted discharge per hospital by cost centre *General Accounting* – $897 per adjusted discharge per hospital by overall department *General Management* in 1992	7.3 FTEs per hospital by cost centre *General Accounting* – 179.8 FTEs per hospital by overall department *General Management* in 1992
Woolhandler et al., 1993 [46]	n/a	• an average of 24.8% of hospitals' spending • 22.4% of the average hospital's salary costs for administrative tasks
Woolhandler & Himmelstein, 1991 [45]	• hospital administration $50 (CAN)–$162 (USA) per capita • nursing home administration $9 (CAN)–$26 (USA) per capita • physicians' administration: ○ expense-based $80 (CAN)–$203 (USA) per capita ○ personnel-based $41 (CAN–$106 (USA) per capita • total costs of health care administration: • high estimate $156 (CAN)–$497 (USA) per capita • low estimate $117 (CAN)–$400 (USA) per capita	• hospital administration: $1.27 bn (CAN)–$39.3 bn (USA) • nursing home administration: $231 m (CAN)–$6.4 bn (USA) • physicians' administration: ○ expense-based $2.04 bn (CAN)–$49.4 bn (USA) ○ personnel-based $1.06 bn (CAN)–$25.8 bn (USA) • total costs of health care administration: • high estimate $3.98 bn (CAN)–$120.4 bn (USA) • low estimate $3.00 bn (CAN)–$96.8 bn (USA)

[a] Gross Domestic Product.
[b] Not available.
[c] Billing and Insurance-Related costs.
[d] Administrative costs.
[e] Full Time Equivalents.

lications statements about AC amounts were integrated into the context of particular health care market characteristics [47,48], quality scores and indicators [42,57], or the number of managed care contracts [49,50]. Four studies compared AC against the background of research and education issues [30,39,40,54]. Despite their complementary contributions, all of the provider-related studies rarely offered advice how to distinguish between appropriate and inappropriate administration due to their problem-centered initial point of research.

4. Discussion

The review aimed to structure available definitions and operationalisation approaches for AC published in scientific studies up this date. Although a classification has been derived for AC definitions, it was challenging to work out a systematic structure for the most suitable measuring parameters, and accordingly for reporting units of AC research in health care. This fact is consistent with the findings of the most recent study by Hagenaars et al. [2]. The

authors have stated that reports on AC still need a common methodology and comprehensive database at the provider level. While they referred specifically to international comparisons, the presented review complements this assessment also for national results. Further remarkable findings of the scoping analysis are presented below.

4.1. Information sources

The distribution between consulted primary and secondary data sources (28% vs. 67%; related to studies with just one source type) indicates a high level trust in the validity of available data and in their consistency with the factual allocation to intended categories [2,5]. While this seems to be reasonable for cost calculations based on the FTEs for administrative and clerical staff due to their formally tasks' exclusivity, it is not for estimates based on functional cost accounts. Additional research on eligibility could provide clarification with regard to the relationship between analytical and factual assignments of administrative tasks, and thus improve the accuracy of available databases.

4.2. Studies' perspectives

According to the derived results, a research gap exists regarding patients' perspectives. None of the identified studies considered patients' resource usage while defining and measuring AC. Only one study referred to patients perspective by regarding at their preferences for several survey modes [30]. Although a minor number of articles reflected practitioners' and health care workers' perception of administrative issues, more research is needed to enlarge the understanding of administrative effects at the level of individuals whose daily business is directly affected by administrative regulations. This kind of research focus might improve the development of assessment and prioritisation tools, which advise where and how to reduce administrative efforts.

With regard to this purpose, clear appointments of the *locus of control* are recommended for further estimates of administrative expenditures as suggested by McKay and Lemak [43]. Information about entities empowered to change the administrative circumstances would help (a) to enforce the dialogue between responsibilities and recipients of administrative regulations, (b) to improve the understanding about perceived costs as well as avoidable expenditures, and (c) to better promote solutions to concerned parties. In this context, it is worth mentioning that only one study referred to the SCM methodology. An inherent part of this conceptual framework is the identification of the regulatory base which claims the actual resource usage for administrative requirements.

4.3. Reporting of resource usage due to administration

Results of AC studies are difficult to compare since various types of presentations exist. While some researchers focus on total monetary results, others are interested in correlation coefficients or time share outside patient care. This variety impedes comparisons and hampers to monitor developments as well as introduced changes in administrative requirements. A stringent reporting structure is recommended to spot methodological similarities and thus, to facilitate the identification of interdependent problems surrounding administrative requirements. As a contribution to this purpose, a reference to the applied definition concepts by authors is strongly recommended. This could avoid partially disconnected research approaches.

Although a long tradition of complaining about AC can be ascertained, a critical discussion remains descriptive. Rarely do critics attempt to embed the phenomenon into an evidence-based assessment of specific managed care techniques such as utilisation review, gate keeping, or audits [50]. Only a few studies provide ideas for data linkage between administrative costs and either outcomes, or effect measures [11,42,49]. In this review, suggested notions were summarised under the overall framework category *complementary analyses* (Table 2). The registered studies address the relationship between AC and, for instance, quality scores, working conditions, or organisational patterns. But as described in Table 2, this category is rather explorative. Since no follow-up studies exist, there is a lack of critical approval for those relationships. Further research is still needed to clarify whether and how to use evidence on administrative expenditures for better health care outcomes. A standardised consideration of this reporting category in AC studies could contribute to that goal.

4.4. Study limitations

This paper summarises main characteristics of research studies on AC by following a broader approach. Further databases and publication types such as governmental reports would certainly enlarge insights into the current body of evidence on AC in health care. Input from linguistic as well as public administration perspective could enhance the methodological map of AC as well.

Regarding the selected data extraction strategy (Table 2), two main caveats apply to the findings. The SHA definition concept is not quite distinct from the terminological approach of national provider data because sometimes national statistics serves as reference point for international reports. Thus, the distinction is more an ideal-typical construct. The included administrative functions and activity types of both concepts are prone to overlap. Moreover, the applied perspective *health care system* includes health maintenance organizations as well as health plan providers. This allocation can be perceived quite controversial since both institution types follow own organisational structures and offer qualitatively different health care products than social security as well as private health insurance schemes. Indeed, a more detailed segmentation of that perspective is indicated for further analyses.

This scoping study provides a descriptive account of available research on AC. It does not address the relative weight of reported evidence in favour of the effectiveness of administrative expenditures in health care. If analytical categories (Table 2) were not met by publications, this does not necessarily indicate poor reporting quality. For instance, neither the analysis by Mathauer and Nicolle [8] nor McKay's and Lemak's case study [43] fulfil the criteria *cost measurement* defined as a physical unit. Moreover, both do not meet *cost valuation* defined as price per considered unit. Nevertheless, both studies provide useful frameworks on how to separate between functions related to administrative resource usages. The design of a critical appraisal checklist could reduce the complexity in the reported AC evidence. However, the development of such a tool should consider the multifaceted scopes of AC studies.

Despite the presented limitations, recommendations were provided for the development of a consistent reporting guideline. Furthermore, the review findings help to narrow research questions for further studies by pointing out the already available operationalisation strategies as well as gaps within the existing lines of research.

5. Conclusion

Heterogeneous proceedings exist in defining, analysing, and reporting about administrative expenditures in health care. Currently, the most represented research focus relates to America's health care expenditures for administrative activities. Some of those studies benchmarked the amount of AC due to specific insurance schemes, or expenditures caused by particular health plans.

They presented AC amounts as a tool to measure the efficiency of health care system designs. Often, their findings were simply described as percentages or monetary rates or total expenditure amounts. Yet, an evidence-based explanation of administrative (non-)efficiency remained uncovered.

With regard to the perspectives of published AC research, analyses of hospitals' AC predominate the current research body followed by the physicians' perspective. Both sectors are characterised by a strong representation of interests in public and economic health care discussions. Further research is needed which considers the processes of chronic and elderly care. Moreover, the major gap is related to the end users' perception of administrative activities in health care delivery. The integration of the patient's perspective into AC research is highly recommended.

Finally, national analyses of AC require a more structured reporting scheme. Consistent reporting as well as less loosely use of the term AC could improve the comparability of available strategies in dealing with administrative requirements. For health care providers, this could help to identify best practice cases suitable to learn from their examples. Furthermore, the appointment of entities empowered to introduce and to implement changes on stated expenditures should be included in AC publications as a standard feature. This could help to systematically consider AC research findings in the policy making processes, and to use them as an assessment tool. Also, addressing responsible parties would enforce a useful dialogue between both, health care stakeholders and policy makers.

Conflict of interest statement

The author declares that there is no conflict of interests.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.healthpol.2018.08.007.

References

[1] Gauthier AK, Rogal DL, Barrand NL, Cohen AB. Administrative costs in the U.S. health care system: the problem or the solution? Inquiry 1992;29:308–20.
[2] Hagenaars LL, Klazinga NS, Mueller M, Morgan DJ, Jeurissen PPT. How and why do countries differ in their governance and financing-related administrative expenditure in health care? An analysis of OECD countries by health care system typology. The International Journal of Health Planning and Management 2018;33:e263–78.
[3] London School of Ecpnomics and Political Sciences (LSE Health), London Efficiency review of Austria's social insurance and healthcare system; 2017.
[4] OECD. Tackling wasteful spending on health; 2017.
[5] OECD. Guidelines to improve estimates of expenditure on health administration and health insurance. Paris: OECD Publishing; 2013.
[6] OECD, Eurostat, WHO. A system of health accounts. OECD Publishing; 2011.
[7] World Health Organization (WHO), Geneva Guide to producing national health accounts with special applications for low-income and middleincome countries; 2003.
[8] Mathauer I, Nicolle E. A global overview of health insurance administrative costs: what are the reasons for variations found? Health Policy 2011;102:235–46.
[9] Cromwell J, Butrica B. Hospital department cost and employment increases: 1980-92. Health Care Financing Review 1995;17:147–65.
[10] Himmelstein DU, Jun M, Busse R, Chevreul K, Geissler A, Jeurissen P, et al. A comparison of hospital administrative costs in eight nations: US costs exceed all others by far. Health Affairs (Millwood) 2014;33:1586–94.
[11] Woolhandler S, Himmelstein DU. Administrative work consumes one-sixth of U.S. physicians' working hours and lowers their career satisfaction. International Journal of Health Services 2014;44:635–42.
[12] Arendsen R, Peters O, ter Hedde M, van Dijk J. Does e-government reduce the administrative burden of businesses? An assessment of business-to-government systems usage in the Netherlands. Government Information Quarterly 2014;31:160–9.
[13] OECD, Paris and Washington, D.C. Businesses' views on red tape: administrative and regulatory burdens on small- and medium-sized enterprises; 2001.
[14] International SCM Network to reduce administrative burdens, International standard cost model manual. Measuring and reducing administrative burdens for businesses, 2006, online: http://www.oecd.org/gov/regulatory-policy/34227698.pdf.
[15] Nijsen AFM, Vellinga N. MISTRAL: a model to measure the administrative burden of businesses. Zoetermeer: EIM Business & Policy Research; 2002.
[16] Nijsen A. Business regulation and public policy: the costs and benefits of compliance. New York, NY: Springer Science+Business Media, LLC; 2009.
[17] OECD, Paris OECD regulatory compliance cost assessment guidance; 2014.
[18] Federal Statistical Office on behalf of the German Federal Government and the National Regulatory Control Council, Wiesbaden Guidelines on the identification and presentation of compliance costs in legislative proposals by the federal government; 2012.
[19] Federal Government, Federal Statistical Office of Germany. Compliance costs in the nursing sector. Application procedures for statutory benefits for people who are in need of care or chronically ill; 2013.
[20] Federal Statistical Office of Germany on behalf of the National Regulatory Control Council, Wiesbaden (on behalf of the editors) More time for primary care. Simplification of procedures and processes in physician and dental practices. Final report; 2015.
[21] Casalino LP, Nicholson S, Gans DN, Hammons T, Morra D, Karrison T, et al. What does it cost physician practices to interact with health insurance plans? Health Affairs (Millwood) 2009;28:w533–43.
[22] Morra D, Nicholson S, Levinson W, Gans DN, Hammons T, Casalino LP. US physician practices versus Canadians: spending nearly four times as much money interacting with payers. Health Affairs (Millwood) 2011;30:1443–50.
[23] Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA. Administrative costs associated with physician billing and insurance-related activities at an academic health care system. CA: A Cancer Journal for Clinicians 2018;319:691–7.
[24] Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Information & Libraries Journal 2009;26:91–108.
[25] Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International Journal of Social Research Methodology 2005;8:19–32.
[26] Mays N, Roberts E, Popay J. Synthesising research evidence. In: Fulop N, Allen P, Clarke A, Black N, editors. Methods for studying the delivery and organisation of health services. London: Routledge; 2001.
[27] Daudt HM, van Mossel C, Scott SJ. Enhancing the scoping study methodology: a large, inter-professional team's experience with Arksey and O'Malley's framework. BMC Medical Research Methodology 2013;13:48.
[28] Husereau D, Drummond M, Petrou S, Carswell C, Moher D, Greenberg D, et al. Consolidated Health Economic Evaluation Reporting Standards (CHEERS)–explanation and elaboration: a report of the ISPOR Health Economic Evaluation Publication Guidelines Good Reporting Practices Task Force. Value in Health 2013;16:231–50.
[29] Mehrotra A, Dudley RA, Luft HS. What's behind the health expenditure trends? Annual Review of Public Health 2003;24:385–412.
[30] Hagan TL, Belcher SM, Donovan HS. Mind the mode: differences in paper vs. web-based survey modes among women with cancer. Journal of Pain and Symptom Management 2017;54:368–75.
[31] Borghi J, Makawia S, Kuwawenaruwa A. The administrative costs of community-based health insurance: a case study of the community health fund in Tanzania. Health Policy and Planning 2015;30:19–27.
[32] Yevutsey SK, Aikins M. Financial viability of district mutual health insurance schemes of Lawra and Sissala East districts, Upper West Region, Ghana. Ghana Medical Journal 2010;44:130–7.
[33] Glied S. Single payer as a financing mechanism. Journal of Health Politics, Policy and Law 2009;34:593–615.
[34] Jiwani A, Himmelstein D, Woolhandler S, Kahn JG. Billing and insurance-related administrative costs in United States' health care: synthesis of micro-costing evidence. BMC Health Services Research 2014;14:556.
[35] Luna JM, Thurman PW, Wolfe M, Yagoda D, Reed E, Figg WD. Private practice administrative costs influenced by insurance payer mix. Journal of Oncology Practice 2009;5:291–7.

[36] Sakowski JA, Kahn JG, Kronick RG, Newman JM, Luft HS. Peering into the black box: billing and insurance activities in a medical group. Health Affairs (Millwood) 2009;28:w544–54.
[37] Kahn JG, Kronick R, Kreger M, Gans DN. The cost of health insurance administration in California: estimates for insurers, physicians, and hospitals. Health Affairs (Millwood) 2005;24:1629–39.
[38] Chandra C, Kumar S, Ghildayal NS. Hospital cost structure in the USA: what's behind the costs? A business case. International Journal of Health Care Quality Assurance 2011;24:314–28.
[39] Kelly M, Murphy A. An evaluation of the cost of designing, delivering and assessing an undergraduate communication skills module. Medical Teacher 2004;26:610–4.
[40] Carpenter JL. Cost analysis of objective structured clinical examinations. Academic Medicine 1995;70:828–33.
[41] Himmelstein DU, Lewontin JP, Woolhandler S. Who administers? Who cares? Medical administrative and clinical employment in the United States and Canada. American Journal of Public Health 1996;86:172–8.
[42] Himmelstein DU, Wright A, Woolhandler S. Hospital computing and the costs and quality of care: a national study. The American Journal of Medicine 2010;123:40–6.
[43] McKay NL, Lemak CH. Analyzing administrative costs in hospitals. Health Care Management Review 2006;31:347–54.
[44] McKay NL, Lemak CH, Lovett A. Variations in hospital administrative costs. Journal of Healthcare Management 2008;53:153–67.
[45] Woolhandler S, Himmelstein DU. The deteriorating administrative efficiency of the U.S. health care system. The New England Journal of Medicine 1991;324:1253–8.
[46] Woolhandler S, Himmelstein DU, Lewontin JP. Administrative costs in U.S. hospitals. The New England Journal of Medicine 1993;329:400–3.
[47] Woolhandler S, Himmelstein DU. Costs of care and administration at for-profit and other hospitals in the United States. The New England Journal of Medicine 1997;336:769–74.
[48] Woolhandler S, Campbell T, Himmelstein DU. Costs of health care administration in the United States and Canada. The New England Journal of Medicine 2003;349:768–75.
[49] Ly DP, Glied SA. The impact of managed care contracting on physicians. Journal of General Internal Medicine 2013;29:237–42.
[50] Remler DK, Gray BM, Newhouse JP. Does managed care mean more hassle for physicians? Inquiry 2000;37:304–16.
[51] Albrecht M, Loos S, Otten M. Cross-sectoral quality assurance in ambulatory care. Zeitschrift fur Evidenz, Fortbildung und Qualitat im Gesundheitswesen 2013;107:528–33.
[52] Mukamel DB, Spector WD, Bajorska A. Nursing home spending patterns in the 1990s: the role of nursing home competition and excess demand. Health Services Research 2005;40:1040–55.
[53] Yesalis 3rd CE, Norwood GJ, Helling DK, Lipson DP, Mahrenholz RJ, Burmeister LF, Jones ME, Fisher WP. Capitation payment for pharmacy services. II. Impact on costs. Medical Care 1984;22:746–54.
[54] Applebaum H, Boles K, Atkinson JB. Introduction of an all-electronic administrative process for a major international pediatric surgical meeting. Journal of Pediatric Surgery 2003;38:1744–7.
[55] Poullier JP. Administrative costs in selected industrialized countries. Health Care Financing Review 1992;13:167–72.
[56] Giuffrida A, Gravelle H, Sutton M. Efficiency and administrative costs in primary care. Journal of Health Economics 2000;19:983–1006.
[57] Himmelstein DU, Woolhandler S. Taking care of business: HMOs that spend more on administration deliver lower-quality care. International Journal of Health Services 2002;32:657–67.