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Case reporting: A historical discourse analysis of the functional uses of if-conditionals in Medical-Officer-of-Health reports

Anna Franca Plastina

University of Calabria

ABSTRACT

The Medical-Officer-of-Health (MOH) report emerged from the need to articulate for government officials matters related to poor sanitary conditions in industrialised 19th-century Britain. If-conditionals were used in this genre of case reporting to gain wider acceptance of MOH claims. The twofold aim of this research is to investigate the macro-functions of if-conditionals and their sociohistorical meanings, and to analyse how participants in MOH discourse are represented through if-constructs. A historical discourse analysis of the semantic functionality of if-conditionals was conducted on a diachronic corpus of MOH reports (mid-nineteenth century – early twentieth century) which detail the spread of smallpox infection. The analysis accounts for the context-sensitive functionalities of *if* on the semantic level supported by corpus-assisted discourse analysis. Results highlight the semantic shift in the macro-functional use of *if* across the two subcorpora based on form-to-function mapping, and further underline how the if-operator conveys dynamic representational meaning in the diachronic evolution of MOH discourse.

Keywords: if-conditionals, MOH reports, macro-functions, discourse analysis, discursive representation of social actors.

1. Introduction

The early modern case report has revealed “new ways of constructing knowledge, relying on empirical methods and explanatory principles based on observation and cognition” (Pahta – Taavitsainen 2011: 3). Few

linguistic studies have, however, investigated this written medical genre from a historical perspective (cf. Taavitsainen – Pahta 2000). Accordingly, the Medical-Officer-of-Health (MOH) report as a historical case-related genre has so far been largely overlooked. In this paper, the MOH report will be considered by examining the functional role played by *if*-conditionals as a context-sensitive type of rhetorical device in historical medical discourse. This unique genre emerged from the need “to appoint a district medical officer [...] to initiate sanitary measures” (Chadwick 1842: 372) against the filthy living conditions and the spread of infectious diseases in rapidly industrialised nineteenth-century Britain. Its origins can be traced in the 1855 British Metropolis Management Act, whereby MOHs were required to report back to their local health boards. MOH reports were thus officially written following the appointment of the first MOH under the 1848 Public Health Act and until the role ceased with the 1974 National Health Service reform.

In general, the MOH report provides a first-hand account of medical-related phenomena similar to the traditional case report. It also draws on inductive reasoning, typical of medical discourse, to advance research claims grounded in experiential information. However, the MOH report differs from earlier case reports as it emerged in the nineteenth century when “the statistical approach changed the epistemological status of individual case reports” such that “a transfer from individual cases to multiple case reports and statistical assessments with probabilities” took place (Taavitsainen 2011: 93). Hence, individual narrative-based case reports can be marked by deontic and epistemic modality to tone down the claims advanced in order to gain wider acceptance within the medical community; MOH reports are featured more by statistical data, but also have a discursive component characterised by professional recommendations and criticisms about local public health needs. Here, *if*-conditionals have particular historical significance as they appear to reflect the “iffiness” MOHs were forced to face.

A case in point concerns the reports on smallpox, one of the most endemic infectious diseases from which London suffered in the nineteenth and early twentieth centuries due to its overcrowded slums, industrial pollution and lack of sewage disposal. Smallpox was thus more epidemic in London districts with increasing fatal outbreaks in 1860-3, 1876-7, 1881, 1884-5 and 1901-2. By the late 1850s, smallpox was “apparently gaining in virulence” and London MOHs “were quick to note the change in the character of the disease” (Hardy 1983: 113-114). Between 1859 and 1864, their efforts were therefore mainly directed at promoting smallpox vaccination, especially as the 1853 Act had made it compulsory. Additional preventive

measures, including isolation and disinfection, were taken following the more stringent provisions of the 1871 Vaccination Act, the establishment of smallpox hospitals and of hospital ships on the Thames during the 1881 epidemic due to the insufficient availability of hospital beds. The marked decline in smallpox mortality led twentieth-century MOHs to argue for more extensive vaccination. Yet, they were accused of failing to “redefine the role of preventive medicine” (Gorsky 2007: 470), especially after the National Health Service was established in 1948. Even earlier, other medical professionals fiercely opposed MOHs, considering them the “Cinderella of the medical profession” (Berridge 2011: 64). As their services were “directed only at the poor and widely detested” and preventive medicine still continued to suffer from medical neglect, MOHs were not accorded “the status of the rest of the profession” (Berridge 1990: 194-195). They further had to grapple with public resistance to vaccination due to the strength of the anti-vaccination movement in the late nineteenth century after the 1898 Act relaxed the law on compulsory vaccination. In other words, MOHs had to struggle to gain a wider acceptance of their “acute and instructive comment and wise counsel” (Jephson 1907: 159).

This study advocates that MOH challenges may be reflected in the discursive construction of if-conditionals, and that their “context-sensitive nature” is likely to be exploited for “both argumentative and speculative purposes” (Carter-Thomas – Rowley-Jolivet 2008: 193). In this light, it analyses the macro-functions if-conditionals serve in construing medical and sociohistorical meanings in a collected corpus of MOH reports on smallpox across London from 1849 to 1950 as the most representative time and place. The study further questions how if-conditionals shape the representation of social actors in MOH discourse, offering insight into its evolution from a diachronic perspective.

2. Theoretical framework

The prototypical conditional *if* has been considered for its valuable role in written medical discourse as it hypothesizes, hedges and promotes research claims (Rowley-Jolivet – Carter-Thomas 2008: 40), operates as an argumentative “space builder” (Dancygier 1998: 23), and supports inductive reasoning. The conventional *if P, Q* construct, whereby the protasis (*P*) is the subordinate if-clause and the apodosis (*Q*) the main clause, has been semantically classified in several ways. Dancygier – Mioduszewska (1984),

for instance, propose that *if P* can carry three different meanings, namely “factual”, “theoretical” and “hypothetical”. Factuality can be found in both *if P* and in *Q*: “a certain result may depend on something being a fact, as well as factuality of one statement may condition the factuality of another”. Theoretical meaning, instead, implies that “the speaker either treats the fulfilment of the condition as truly open or does not possess the necessary knowledge”. Finally, *if P* holds hypothetical meaning when the speaker “is creating a new situation to be analysed” (Dancygier – Mioduszewska 1984: 128-130). Athanasiadou and Dirven (1997), instead, identify “course of events”, “hypothetical” and “pragmatic” as the three main types of conditions. Course-of-events conditionals commonly occur in scientific contexts and are shaped by factual meaning; hypothetical conditionals establish causal dependency relations (*if P, then Q*), while pragmatic conditionals vaguely refer to all those which are not included in the two former categories. These more traditional classifications of *if*-clauses attribute great importance to syntactic or other conceptual sub-categorizations (e.g. truth-value) and have been amply used to refer to the logical or formal structures of the conjunction through instances isolated from their contexts of use. As these classifications hardly pay any attention to the variety of meanings implicit in the conjunction itself, and thus do not account for the ways in which *if*-conditionals operate in their natural contexts of use, they seem somewhat unfit to frame the present research.

From this perspective, the current study considers the functional uses of the *if*-conditional in the naturally occurring texts of MOH reports as one type of “rhetorical device for gaining acceptance of one’s claims” (Warchal 2010: 141). The research is therefore theoretically framed by the classification proposed by Carter-Thomas – Rowley-Jolivet (2008: 193-194), which categorises *if*-constructs according to three potential macro-functions: “factuals”, “refocusing” and “discourse management”. Factuals refer to *if*-statements established “about the natural world, by observing regularities and correlations, and by carefully defining the conditions under which the facts hold” (Rowley-Jolivet – Carter-Thomas 2008: 194); grammatically, they correspond to “the category of real conditions (present or past)” (Rowley-Jolivet – Carter-Thomas 2008: 44). Refocusing refers to *if*-statements which speculate and make suppositions for “the promotion of claims and the confrontation of different viewpoints” by “expanding or contracting the argumentative space” (Rowley-Jolivet – Carter-Thomas 2008: 194); grammatically, this category is often referred to as that of “unreal or ‘hypothetical’ conditionals”, and may include modalised recommendations and concessive uses (Rowley-Jolivet – Carter-Thomas 2008: 45). On the

other hand, discourse management includes non-assertive if-clauses which are meant to guide readers through the text either to introduce new topics (topic-shifting), or “to instruct readers on where to direct their attention” (topic-marking) (Rowley-Jolivet – Carter-Thomas 2008: 45).

The study is further guided by van Leeuwen’s framework to analyse how if-conditionals help endow social actors with active or passive roles according to the following criteria:

activation occurs when social actors are represented as the active, dynamic forces in an activity, *passivation* when they are represented as ‘undergoing’ the activity, or as being ‘at the receiving end of it’ [...] activation is realized by ‘participation’ [...] but can also be realized [...] through ‘circumstantialization’, that is by prepositional circumstantials [...] the passivated social actor can be *subjected* or *beneficialized*. Subjected social actors are treated as objects [...] Beneficialized social actors [...] positively or negatively benefit from the action (original emphasis). (van Leeuwen 2008: 33)

In addition, activation may occur through “functionalization”, when “social actors are referred to in terms of an activity, in terms of something they do”; through “relational identification”, which “represents social actors in terms of their personal kinship, or work relations to each other”; or through “overdetermination” when they are “represented as participating, at the same time, in more than one social practice” (van Leeuwen 2008: 42-48).

Furthermore, the study is informed by the principles of corpus-based discourse analysis, whereby “[...] recurrent discursive phenomena that are revealed in [...] corpora in the form of keywords [...] offer an observable record of the unconscious behaviours through which dominant meanings are discursively reproduced” (Hunt – Harvey 2015: 135).

3. Corpus and methodology

Keyword searches in the *London’s Pulse MOH collection* (<http://wellcomelibrary.org/moh/>) for “smallpox” and “vaccination”, as the most significant terms for the study, yielded 48 reports on 31 London districts dating 1849-1950. All raw materials were downloaded and searched manually to discard irrelevant information, including statistical tables and lists of district names. Filtered texts containing if-conditionals were saved as an electronic document in .txt format for subsequent corpus analysis via AntConc 3.5.0 concordance software

(Anthony 2017). The corpus used in the study (10,435 words) was divided for comparative analysis into two subcorpora, respectively labelled “Nineteenth century” (5,460 words) referring to the major epidemic period between 1849 and 1899, and “Twentieth century” (4,975 words) related to the breakdown period between 1900 and 1950. Hence, this diachronic range of texts ensured a better balance of the variety of *if* meanings, and their representativeness. The small corpus was considered to provide relevant and reliable evidence of the use of *if* in specialised discourse (cf. Sinclair 2001), while also allowing qualitative discourse analysis to keep within manageable bounds. The corpus-assisted discourse analysis was driven by a quantitative and qualitative research methodology, which allows quantitative corpus data to be used as the basis for analysing qualitative data from a different perspective and making them more reliable (Mautner 2009: 45). This methodological approach thus also supports a historical discourse analysis, which is here considered as involving the study of how *if*-conditionals functioning on the discourse level come to function on the semantic level (cf. Brinton 2001: 40). Frequency analysis based on concordance searches was conducted to code the macro-functions of *if*-constructions according to Carter-Thomas – Rowley-Jolivet’s (2008) classification. A more fine-grained qualitative analysis was carried out to identify “the variety of values and meanings that *if* takes on in medical discourse” (Rowley-Jolivet 2007: 176) at the discursive level, based on the criterion of “topical or thematic relevance” (van Dijk 1979: 117). The specificity of dominant macro-functions was annotated also across the subcorpora for potential diachronic semantic changes. Accordingly, the linguistic features and underlying meanings of the conventional *If P, Q* construct and its variations were analysed in-depth. Finally, the functionality of *if*-conditionals was analysed at the sociohistorical level. An automatically generated corpus wordlist of the main social participants evoked by conditional structures was used to analyse their representational meanings in expanded concordance lines. This was accomplished by drawing on van Leeuwen’s (2008) taxonomy of representation of social actors in discourse analysis.

4. Results and discussion

4.1 *If*-conditionals: Macro-functions in MOH discourse

The concordance search yielded 241 occurrences of *if*-conditionals covering all three macro-functions, which presented an uneven distribution in the whole corpus as reported in Table 1.

Table 1. If macro-functions: Occurrences and distribution in the corpus

<i>If</i> macro-functions	Occurrences	19th-century subcorpus	20th -century subcorpus
Factuals	81 (33.6%)	46 (33.1%)	35 (34.3%)
Refocusing	148 (61.4%)	86 (61.9%)	62 (60.7%)
Discourse management	12 (5.0%)	7 (5.0%)	5 (5.0%)
Total	241	139	102

The highest frequency of occurrence is recorded for the “refocusing” function (61.4%), followed by the “factuals” function (33.6%) and by a scant occurrence of the “discourse management” function (5.0%). Broadly, the predominance of the refocusing function across the two subperiods suggests that if-conditionals mostly operate to construct argumentative and/or hypothetical claims and that the factuals function is deployed far less than in other medical discourses (cf. Ferguson 2001), probably to construct inductive reasoning more than anything else. However, the fine-grained qualitative analysis of the specificity of these two macro-functions (cf. Table 2) revealed their effective operational purposes according to their historical context of use. Findings show that both functions are semantically driven by what can be labelled as “medical topicality” on the one hand, and as “socio-scientific topicality” on the other. Moreover, these two more general macro-functions can be subdivided into four distinct macro-functions organising MOH discourse: medical factual, medical refocusing, socio-scientific factual and socio-scientific refocusing. The former two functions are grounded in medical topicality, and are specifically found to organise discourses of preventive medicine; the latter two functions pertain to socio-scientific topicality, and particularly govern discourses of social medicine. The following sample if-statements taken from the corpus offer instances of how each of the four functions operates.

Example (1) refers to the medical factual macro-function of the if-operator:

- (1) *If* the vaccination marks are of an area of half a square inch, they indicate a better state of protection than *if* their area be at all considerably below this. [Hackney 1900]

In general, the if-operator in (1) moves within the field of preventive medicine with the purpose of establishing a positive causal relation between “vaccination marks” and “state of protection”. It thus defines the precise

medical condition (“vaccination marks are of an area of half a square inch”) under which the fact of “a better state of protection” holds. The factual status of this macro-function has a truth implication originating from medical evidence which has already been scientifically validated. This truth is structurally represented through the zero-conditional type, marked by “are” and “indicate” as present tense verb; the function is typically expressed through the *if P-present, Q2-present* structure, whereby given the condition that *P* is present, the *Q* fact is also present. Example (1) also shows how the strength of the medical factual function may be further reinforced by activating a process of inductive reasoning centred on the value of *if P*. The second *if*-operator is, in fact, used to restrict the real medical condition (“their area be at all considerably below this”) under an inverse comparison. The restriction allows the truth value of *P* to be weakened so that the premise is now questionable. This inductively leads to the tacit conclusion of “a worse state of protection”, which is structurally rendered through the inferred *if not-P, then not-Q* construct.

Example (2) illustrates, instead, the meaning *if* acquires through its socio-scientific factual macro-function:

- (2) The Public Vaccinators went through the infected streets and large numbers of children were thus reached *if* parents had been too supine to take them to the operator. [St Giles, Camden 1859]

In this case, *if* operates meaningfully within the field of social medicine governed by the observation of regularities in children’s smallpox vaccination. Compared to example (1), where the factual status of the macro-function is grounded in well-established medical knowledge, the factuality of the macro-function in example (2) is based on the less predictable socio-scientific condition of identifying negligent parents (“if parents had been too supine”). This different semantic nuance is structurally represented through the modification of the typical medical factual *if P-present, Q2-present* macro-function in (1). In (2), the *Q-past, if P-past* structure is, indeed, introduced to express the meaning of the socio-scientific factual macro-function. *Q* now occupies the initial position in the statement for the meaningful purpose of attributing authority to “the Public Vaccinators” and to their decisional treatment (“went through the infected streets and large numbers of children were thus reached”); the *if P* condition relevant to this decision is explained only after. While the postposed *P*-clause is also typical of factual conditionals (zero type) relating to treatment decisions in other medical genres (cf. Rowley-Jolivet – Carter-Thomas 2008), its use in MOH discourse connotes

a more socio-scientific meaning reflecting the promotion of vaccination in accordance with the 1853 Act. A historical use of the restrictive function of *if* can also be seen in these examples. In (1), *if* operates as an early twentieth-century “restrictor” to state the precise size of vaccination marks and thereby validate their effectiveness; in (2), it acts as a filter of the nineteenth-century social conditions, which required necessary medical action.

The refocusing function also acquires significance, as shown in examples (3) and (4), where *if* operates respectively as a medical refocusing macro-function and a socio-scientific refocusing one according to the historical context of use:

- (3) It is impossible to fix, with precision, the length of this period of highest protection. Though not in all cases the same, *if* a period is to be fixed, it might, we think, fairly be said to cover in general a period of nine or ten years. [Finsbury 1902]
- (4) *If* vaccination is no protection against Smallpox (as claimed by the anti-vaccinators), the vaccinated children under 10 years of age in Lambeth ought to have added to the epidemic 195 cases (instead of the 11) and 45 deaths (instead of the 1). [Lambeth 1877]

In (3), the medical difficulty of fixing the precise “period of highest protection” of smallpox vaccination at the turn of the twentieth century creates the context in which the macro-function is allowed to operate. The purpose of *if* here is to open up a hypothetical space, where suppositions about the beneficial duration of smallpox vaccination can be advanced. The condition is thus structured as a matter-of-fact future tense (“if a period is to be fixed”), which points to a somewhat future need for advances in disease prevention. Hedging (“might”, “think”, “fairly”, “in general”) of the hypothetical claim of “a period of nine or ten years” denotes scientific uncertainty, which generally characterises medical research. As in other medical discourses, hedging here too plays a critical role in “expressing possibility rather than certainty and prudence rather than overconfidence” (Hyland 2006: 694). In other words, the *if*-operator clearly points to the state of medical understanding in 1902, and its contextual value is thus typically reflected in the underlying *if P, then mQ* construct (where *m* = maybe). In (4), *if* works as a means toward the end goal of promoting the protective value of smallpox vaccination in the wake of the 1871 Act. It is therefore functionally used to build an argumentative space, whereas in (3) its scope is to create a hypothetical space. In detail, *if* manages to expand an argumentative space

under the questionable factual condition that “vaccination is no protection against Smallpox” (*if P*). Authorship of the conditional claim (“claimed by the anti-vaccinators”) is overtly signalled to indicate that the argumentative space is open to confrontation with opposing viewpoints. Under these premises, argumentation in the *Q*-clause is cognitively guided by inductive reasoning, and structurally governed by weak modal meaning (“ought to”) with the deliberate intent of undermining the propositional force of the “epidemic”. This then allows a stronger argumentative status to be ascribed to *Q*, also through the use of the adverbial clause “instead of” and its strategic placement in the final position. Here, it is meant to convey new facts for the purpose of replacing previous ones so that the expected “195 cases” and “45 deaths” are substituted by the unexpected “11” and “1”. These new facts acquire additional truth value due to the credibility of the professional source of information. Hence, the new data completely disqualify the truth value of *if P* on the basis of a sound argumentation supported by verifiable facts. The *if*-operator thus moves within the typical $P \oplus Q$ ($\oplus = \text{either } P \text{ or } Q$) construct of argumentation, whereby *P* and *Q* are mutually exclusive, and *or Q* represents the only truth in (4).

Finally, while the results show that the macro-function of discourse management is not significantly used in MOH discourse, example (5) illustrates how it works to provide a complete picture of the macro-functions:

- (5) *If I could therefore draw attention to what is a most essential feature in vaccination, and that is the having it done thoroughly and as efficiently as possible. [Surbiton 1898]*

Although the *if*-clause does not connote any assertive value here, its meaningful goal is to politely direct addressees to focus their attention on the key aspect of “what is a most essential feature in vaccination”. This topic-marking function primarily instructed governmental officials as historical listeners to follow the development of the MOH’s topic of interest (“the having it done thoroughly and as efficiently as possible”), but also eases the current reading of the report.

These results reveal that refocusing and factuality are the two dominant macro-functions served by *if*-conditionals even across the two subcorpora (Table 1), and the instances point to a context-sensitive use of *if*-constructions. Furthermore, the occurrence of four distinct macro-functions, which construe different medical and socio-scientific meanings, suggests that topicality appears to be a key parameter for identifying potential functional changes in the use of *if*-constructions from a diachronic pragmatic perspective.

4.2 Diachronic functional changes of if-constructs

Form-to-function mapping, a technique pertaining to historical discourse analysis, and particularly to diachronic pragmatics to disclose potential “changes in the communicative functions of linguistic features” (Taavitsainen – Fitzmaurice 2007: 14), was conducted on if-constructs across the two sub-corpora. Analytical results are reported in Table 2.

Table 2. Diachronic functional changes of if-constructs across the subcorpora

<i>If</i> macro-functions	19thc. (N=132)	Recurrent <i>if</i> patterns	20th c. (N=97)	Recurrent <i>if</i> patterns
Medical factual	9 (6.8%)	=	31 (32%)	<i>If P-present, Q2-present</i>
Socio-scientific Factual	37 (28%)	<i>Q-past, if P-past</i>	13 (13.4%)	=
Medical refocusing	23 (17.4%)	=	48 (49.4%)	<i>If P, then mQ</i>
Socio-scientific refocusing	63 (47.8%)	$P \oplus Q$	5 (5.2%)	=

Results generally indicate that out of the total of 229 factual and refocusing functions found in the entire corpus, 57.6% ($n=132$) occur in the nineteenth-century subcorpus and 42.4% ($n=97$) in the twentieth-century one. A significantly higher occurrence of the socio-scientific refocusing function is recorded in the nineteenth-century corpus (47.8%) compared to the twentieth-century one (5.2%). The recurrent pattern of the $P \oplus Q$ construct was identified, thus revealing an overall argumentative purpose of nineteenth-century reports. At the semantic level, this conditional pattern further shows how two major sociohistorical arguments about smallpox vaccination are constructed. Example (6) offers an insight into the MOH’s legislative concern, construed through the conditional structure which carries the sociohistorical meaning of the government’s persisting *laissez-faire* approach to the health policy of vaccination:

- (6) But *if* the Government Bill were to pass, ... an ever-increasing number of persons would exist in our midst, who, being themselves unprotected by vaccination ... *would* become the means in any future epidemic of spreading the disease indefinitely. [Kensington 1879]

The adversative marker *but* allows *if* to build a counterfactual space, where a hypothetical situation is envisaged (“an ever-increasing number

of persons ... being themselves unprotected by vaccination"). The circumstantial possibility ("become the means in any future epidemic of spreading the disease indefinitely") is modalised by *would*, which expresses objective epistemic meaning based on the MOH's professional expertise. Argumentatively, the counterfactual condition ("if the Government Bill were to pass") thus mutually excludes the control of any future epidemic ($P \oplus Q$). The Bill was "vigorously opposed" by "petitioning the House in deprecation of any relaxation of the law in the direction indicated in the Government measure" and "subsequently withdrawn" (*Report of the Medical Officer of Health for Kensington 1879*: 65).¹

In (7), the conditional structure is used to emphasise the importance of controlling population health, and thus the MOH's professional commitment in this direction, especially due to the serious smallpox outbreaks even after compulsory vaccination was introduced in 1853:²

- (7) From this [the recent epidemic], we *may* form some feeble idea of the ravages that this loathsome disease would have created *if* its contagiousness and virulence had not been checked by general vaccination. [Shoreditch 1859]

The "recent epidemic" provides supportive argumentation for the hypothetical claim on the "contagiousness and virulence" of the disease under a negative condition ("if... had not been checked by general vaccination"). The vague idea of the devastating consequences ("the ravages") is modalised by the use of *may*, which conveys deontic meaning deriving from MOH authoritative knowledge, merged with dynamic meaning springing from the factual circumstances ("the recent epidemic"). Hence, "some feeble idea" is mutually exclusive with the real condition of experiencing the terrible effects of the disease ($P \oplus Q$).

On the other hand, a significantly higher occurrence of the medical refocusing function can be observed in the twentieth-century corpus (49.4%) compared to the nineteenth-century one (17.4%). The *if P, then mQ* construct was found to be the recurring structural pattern used to build hypothetical medical claims grounded in the real advances made in disease treatment in the twentieth century, as shown in (8) and (9):

¹ <https://dics.io/pdf/wellcome/pdf-item/b1982421x/0>

² For further discussion on the vaccination debate in the eighteenth century, see Taavitsainen (2019).

- (8) There can be no doubt that early recognition and isolation has been the secret of our success in Finsbury. *If* it had not been for this, it is certain that the epidemic *would* have been more widespread. [Finsbury 1902]

The if-conditional in (8) reinforces the successful outcome of “early recognition and isolation” as progressive medical steps (“if it had not been for this”), allowing dynamic meaning related to the real circumstances of “the epidemic” to be expressed through the modal verb *would*. The hypothetical medical claim (“would have been more widespread”) expresses absolute certainty (“it is certain”) springing from medical knowledge, and thus establishes truth value. Hence, under the conditions of early recognition and isolation, the epidemic is then certainly less widespread (*if P, then mQ*).

- (9) The Medical Officer asserts advisedly – and his assertion is based on his intimate knowledge of Small Pox – that such figures are lamentable, and that *if*, unfortunately, this disease should again attack the borough with any virulence, it *will* be found that large numbers of people *will* die, and that the sufferers for the most part *will* be children, as it was in pre-vaccination days. [Islington 1919]

Due to the low vaccination rates (“such figures are lamentable”) reported in (9), the MOH foresees the likelihood (“again”) of an attack of the disease, envisaging a hypothetical catastrophic situation. The modalisation of the verbs “found”, “die” and “be” through the use of *will* expresses a high possibility of lethal consequences under the circumstance of a new attack (*if P, then mQ*). The argumentative force of the hypothetical claim is further strengthened by the MOH’s “intimate knowledge of SmallPox”.

On the whole, these results highlight the semantic shift from the nineteenth-century $P \oplus Q$ construct to the twentieth-century *if P, then mQ* construct, thus pointing to the polysemous nature of the if-operator in MOH discourse under the evolving sociohistorical conditions of smallpox epidemics, vaccination and its legislative regulations.

4.3 If-conditionals: The representation of social participants

A total of 132 if-conditionals (54.7% of all the 241 instances) conveying representational meanings of social actors was recorded. The corpus wordlist yielded the presence of five groups of social participants in MOH discourse. Results on their frequency (f) and percentage of occurrence (f%) are reported in Table 3.

Table 3. If-conditionals representing the five groups of social actors in MOH discourse

Social participants (N=132)	f	f%
1. child/children	55	41.6
2. patient(s)	24	18.2
3. conscientious objector(s)	20	15.2
4. parent(s)	18	13.7
5. medical officer/doctor	15	11.3

The results show that child/children is consistently the top category represented in MOH discourse on smallpox vaccination (41.6%), and that all if-statements significantly contribute to endowing this social group with representational meanings of passivation (van Leuuwen 2008), as shown in examples (10a-d):

- (10) (a) *If deaths of children arise in this parental neglect, they ought to be considered in the same light as when they arise in the neglect to feed or to clothe.* [City of London 1850]
- (b) *If a parent has been once adjudged to pay the full penalty of twenty shillings, or twice adjudged to pay a smaller penalty, no farther conviction can be obtained, and the unfortunate child, or children, must remain unvaccinated.* [Kensington 1870]
- (c) *If isolation were impossible, and a number of children of different families inhabited the same house, I caused the healthy children to be vaccinated, and removed them into the country.* [St. Saviour's 1882]
- (d) *If, in consequence of vaccination, a child requires medical attention, it should be the public vaccinator's concern to provide such attention without cost to the parents.* [City of Westminster 1930]

In (10a), the if-clause carries historical meaning referring to the rise of smallpox mortality among children in mid-nineteenth century London ("deaths of children arise"), and attributes the cause to "parental neglect", whereby children become subjected social actors. Subjectification is further reinforced in the main clause through the conceptual meaning that *neglect* acquires on the grounds of the parent-child "relational identification" (van Leuuwen

2008: 43). Hence, parents' duty to vaccinate their children is equated with their obligation to feed and clothe them. Accordingly, the modal verb *ought to* acquires historical discourse value as it expresses deontic meaning stemming from the MOH's expertise, merged with epistemic meaning deriving from his authority. In (10b), instead, the if-clause serves the purpose of introducing the legal aspect of parents' refusal to vaccinate their children ("adjudged to pay"). As a result of parents' sociolegal "relational identification", dependent on the external legislative circumstance, the child/children are represented differently as subjected actors ("unfortunate"). Subsequently, the verb *must* is used to merge deontic and dynamic meanings to objectively report the result of "unvaccinated" children further subjected by the external fact that "no farther conviction can be obtained". While both if-clauses introduce negative parental conditions, the semantic shift in their use points to the legislative changes which took place at the time. Although provision for free vaccination was made under the 1840 Vaccination Act, parents doubted its effectiveness and safety; the 1853 Act made vaccination compulsory for all three-month old infants, and defaulting parents were liable to a fine or imprisonment.

Examples (10c) and (10d) show, instead, how positive causal links are created between the actions of medical practitioners and children, who are therefore represented as beneficialized social actors. In (10c), in spite of the difficult conditions introduced by the if-clause, propositional content in the main clause connotes positive outcomes thanks to the MOH's "functionalization" (van Leuwen 2008: 42), or what he does ("I caused, removed"); in (10d), on the other hand, the if-clause considers the possibility of vaccine side-effects so that propositional content in the main clause is modalised by the verb *should* to reasonably indicate the medical practitioner's deontological obligation of providing free care. Historically, these if-conditionals reflect a shift from the more preventive measures taken by MOHs by the late nineteenth century to reduce child mortality toward the twentieth-century concern for ensuring that children with vaccine side-effects received proper costless treatment from the Vaccination Officer, formerly appointed under the 1871 Act. Overall, these results reveal that, while the conditional structure contributes to shaping the representation of child/children as being "at the receiving end" (van Leuwen 2008: 33), the use of if for their passivation is strongly dependent on the active social agents involved.

As for the social representation of patients, these are depicted by the if-conditional through passivation. Unlike the representation of children,

however, patients are mainly portrayed according to the broad category of inclusion and exclusion (van Leuwen 2008) with specific reference to the semantic field of medical diagnosis, as illustrated in (11):

- (11) [The routine adopted by the Metropolitan Asylums Board is to take each *patient* (when notified) first to the Shelters or Observation Wards at Rotherhithe (South Wharf)]. From these the *patient*, *if* found suffering from Smallpox, is sent in one of the river ambulances to the Hospital Ships, which are moored at Long Reach (the mouth of the Thames). Here the *patient* is again medically examined, and *if* still thought to be suffering from Smallpox (but not otherwise), is admitted on to the Ships. [Lambeth 1902]

The if-operators in (11) portray the patient as a social actor subjected to diagnostic processes (“found suffering from smallpox”, “still thought to be suffering from smallpox”). These procedural premises lay the grounds for inclusion in medical treatment (“is sent ... to the Hospital Ships”, “is admitted on to the Ships”) or exclusion (“but not otherwise”) in the main clauses. Moreover, the if-statements are embedded with evident historical meaning, particularly rendered through nominal elements (“river ambulances”, “hospital ships”), which acquire contextual value resulting from “the routine adopted by the Metropolitan Asylums Board”. This routine refers, in fact, to the practice of using old wooden warships (the Atlas and the Endymion) for more bed space and for better isolation at “the mouth of the Thames” at the time of a smallpox epidemic. Discursively, the context-sensitive nature of *if* is confirmed by the fact that all the 24 instances of “patient(s)” occurring in the corpus refer to MOH reports dated 1881-1903, after which land-based smallpox hospitals were built and the ships became redundant.

Unlike children and patients, “conscientious objectors” are represented as active social actors, as shown in (12a-d):

- (12) (a) *If the conscientious objector is allowed to increase and multiply, this is owing to the laxity of this Act [Vaccination Act of 1898]. [Surbiton 1898]*
- (b) *If there has been a decline in the proportion of conscientious objectors during a year when Small-pox is epidemic, this is some indication of the little faith the average anti-vaccinationist attaches to his own teachings when face to face with the disease. [City of London 1902]*

- (c) *If* the number of *conscientious objectors* is increasing, this is doubtless due to the Vaccination Act of 1907, which is a direct encouragement to persons not to take advantage of a means which is known reduces the susceptibility of their children to an attack of small-pox. [City of London 1913]
- (d) Yet the same *conscientious objectors*, who place no barrier in the way *if* their relatives are seriously ill, obstruct, at every opportunity, the adoption, during health, of similar methods which would prevent the occurrence of such illness. [East Ham 1927]

In (12a) and (12c), the *if*-operators present conscientious objectors as active behaviors participating in a dynamic process of expansion (“is allowed to increase and multiply”, “is increasing”). Their activation is specifically realized through “circumstantialization” (van Leeuwen 2008: 33) in the main clauses, where the circumstantial expressions “owing to” and “due to” respectively refer to the Vaccination Act of 1898 and that of 1907 as the main causes. While both refer to the “Conscience Clauses”, the expressions charge the *if*-statements with historical significance: the 1898 Act allowed conscientious parents to claim exemption (“laxity”), frequently rejected by many magistrates; the 1907 Act forced them to grant it (“a direct encouragement”). In (12c), the circumstantial representation of conscientious objectors, generically defined as “persons”, further helps build argumentation (“... not to take advantage of a means”), strengthened by the passive voice “is known” to stress the MOH’s knowledgeable certainty of vaccination benefits. In (12b) and (12d), instead, the social actors are pictured as participating in both pro- and anti-vaccine practices through “overdetermination” (van Leeuwen 2008: 48). In (12b), the *if*-clause particularly destabilizes “conscientious objectors” through the real condition of “decline”, which weakens their values (“little faith... own teachings”) when directly faced with the disease; in (12d), “conscientious objectors” are represented through “inversion” as “a form of overdetermination” (van Leeuwen 2008: 48) as they not only participate in more than one social practice at the same time, but engage in two opposing ones (“obstruct at every opportunity” vs. “place no barrier in the way”). Here, the *if*-operator jointly functions with the adversative discourse marker *yet* and the qualifier *same* to emphasize this contrasting behaviour. On the whole, these results point to the dynamic meanings the *if*-operator attributes to the concept of conscientious objection following the Vaccination Acts, which appeared to favour the proliferation of the nineteenth-century anti-vaccination movement.

Consistently with the passivation of children (see examples 10a-b), the category of parent(s) is always endowed with activation expressed through relational identification. Interestingly, this kind of representation appears to provide tangible evidence of how the *if*-construct undergoes changes in its communicative functions according to the evolution of MOH discourse, as illustrated in (13a-c):

- (13) (a) The death of a child by small-pox would in most instances call for a verdict of “homicide by omission” against the *parent if* you consider that he had *neglected* daily opportunities of giving it immunity from that disease by the simple process of vaccination. [City of London 1849]
- (b) *If* this Bill were to become law, any *parent* who may *object* to vaccination will be enabled, at the cost of a few shillings, to escape the performance of what is by most reasonable persons regarded as a duty to his own offspring. [Kensington 1879]
- (c) The nation is exposing itself to an absolutely unnecessary chance of an epidemic of smallpox on a huge scale, *if* individual *parents* are not acting in the best interests of the future of their children. [Paddington 1913]

In (13a), *if* operates on the grounds of parental neglect, shaping the representation of parents based on “kinship” relational identification. This allows the conditional statement to harshly condemn negligent parents (“a verdict of ‘homicide by omission’”) in the historical period of the mid-nineteenth century when the death toll from smallpox epidemics was huge. In (13b), instead, the functional purpose of *if* is strictly related to the concern about parents’ legal objection to vaccination under the late nineteenth-century circumstance of potential law enforcement. A “sociolegal” relational identification thus builds the representational meaning of any parent, who is potentially allowed to pay a small penalty (“a few shillings”) to escape parental responsibility. In (13c), the conditional structure expands on parents’ relational identification to include not only the “kinship” relation (“best interests of their children”) characterizing (13a), but also to establish a “collective” relational identification, grounded in the twentieth-century social concern of exposing the entire nation to the risk of a devastating smallpox epidemic.

Finally, doctors/medical officers are referred to in terms of their professional actions, or “functionalization” (van Leeuwen 2008: 42), as indicated in (14a-c):

- (14) (a) *If the all-complacent Doctor believes in vaccination, let him do it as he knows it should be done. But it is another matter if he conceives he has done his duty by his countrymen and women. [He thereby assists very materially in bringing discredit on vaccination in the eyes of the ignorant and unthinking as a protective against smallpox]. [Surbiton 1898]*
- (b) *In Lambeth, the Medical Officer of Health acted as expert and consultant for the Borough, and this arrangement was found to work well, even if much extra work devolved in consequence upon such officer. [Lambeth 1902]*
- (c) *The Medical Officer of Health knows very well that if the views held on this subject by many people are really conscientious, there are hundreds who oppose vaccination, especially women, only because of the trouble and inconvenience caused by the infant for a short while after vaccination. [Islington 1919]*

The above examples show how different representational meanings of the doctor/medical officer are shaped across the timespan of two decades. While the if-statement in (14a) depicts the “doctor” as a professional who is self-satisfied with his vaccination practice (“all-complacent”), it exhorts him (“let him do it”), nevertheless, to properly perform his duty according to required professional ethics. This obligation is marked by the deontic meaning of *should* and by epistemic knowledge (“as he knows”). The adversative *but*, however, introduces a subjective condition (“if he conceives he has done his duty”), which acquires important historical significance as it acts as a space-builder for argumentation against “bringing discredit on vaccination”. In (14b), instead, the MOH is propositionally represented as a knowledgeable professional (“expert and consultant”) under the concessive conditional “even if”, which offers an insight into “the manifold duties occupying [the MOH] fully” (Wohl 1999: 610). In (14c), *if* introduces the real condition of a “conscientious” community as a lead-in to the argument of vaccination opposition. While the generic representation of “hundreds” signals the fact that MOHs were historically exposed to “openly hostile vestries” (Wohl 1999: 610) in the early twentieth century, the prototypical opponents are clearly

identified as “women”. These gain dynamic representational meaning only when their initial social role is “reallocated” (cf. van Leeuwen 2008: 32) through a “mother-child” relational identification, marked by “the infant” and the side-effects it experienced as the primary cause of vaccine aversion.

5. Conclusion

Although the MOH genre is characterised by multiple case reports featuring statistical assessments of diseases, the discursive component offers valuable insight into their sociohistorical contexts. If-conditionals as context-sensitive rhetorical devices play a key role in reflecting the evolving nature of local public health, the diverse efforts MOHs made and also in marking the beginnings of epidemiological reporting (Gorsky 2007), as highlighted in the present study. Results generally show how refocusing is the dominant if-conditional macro-function in MOH discourse throughout the corpus, thus suggesting the officers’ common interest in making important recommendations based on the promotion of their scientific claims. The more fine-grained diachronic analysis shows a functional variation driven by the parameter of topicality across the two subcorpora: if-constructs operate according to a distinct socio-scientific refocusing function in the nineteenth-century subcorpus, whereas they are characterised by a predominant medical refocusing function in the twentieth-century one. The recurrent use of the structural $P \oplus Q$ pattern in nineteenth-century conditionals is a clear indicator of their argumentative purpose, which mirrors MOH concerns about smallpox vaccination both from a legislative viewpoint and from that of stressing the importance of regulating population health; the prevailing *if P, then mQ* construct in twentieth-century conditionals underlines its use for building hypothetical medical claims grounded in the real advances made in disease prevention. Although these results are by no means conclusive as they need to be tested on a larger MOH corpus including other British areas, they offer thought-worthy insights into the polysemous nature of if-conditionals in historical medical texts. They point to the historical diversity of MOH reports determined not only by individual authorship, but more significantly by sociohistorical changes across the timespan considered even for the same districts, as suggested by the reports covering the City of London and Lambeth districts.

Moreover, findings shed light on the dynamic representational meanings of if-conditionals and their contribution to the diachronic evolution of

MOH discourse. Representations of children as the main social participants shift from the Victorian portrayal of mortality and filthy living conditions to that of free medical care; those of patients show how if-constructs operate in the context of smallpox epidemics, offering a historical view of the use of hospital ships. Finally, parents, conscientious objectors and medical officers/doctors as the other three social groups represented through if-conditionals all point to the rise and proliferation of the anti-vaccination movement, which has been rejuvenated in recent years (cf. Plastina – Maglie 2019).

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Address: ANNA FRANCA PLASTINA, Department of Pharmacy, Health and Nutritional Sciences, University of Calabria, 87036 – Rende, Italy.

ORCID code: <http://orcid.org/0000-0002-8259-5161>.