

Article

Consensus on Metrics for the Assessment of a Medical Science Liaison Using the Delphi Method

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AbSTrACT

The determination of the metrics to evaluate the figure of medical science liaison (MSL) presents certain difficulties, as there is a great deal of variability. Therefore, the aim of the present exploratory study is to evaluate the metrics for evaluating MSL performance that are currently being used by the medical departments of the pharmaceutical industry in Spain by using the Delphi methodology with two rounds of participation. Moreover, the study aims at providing an expert consensus about which metrics should be used and how they should be evaluated in order to be as appropriate and feasible as possible.

After the first round, experts reached a consensus in 20 (38.5%) of 52 items: 18 in agreement and 2 in disagreement. In the second round, they established consensus in 8 (25.0%) of the remaining items. Overall, consensus was met in 28/52 (53.8%) items: 23 in agreement (44.2%) and 5 in disagreement (9.6%). No consensus was reached in 24 items (46.2%). On the general metrics, there was consensus agreement that the weight of each of these metrics should vary according to the product life cycle (96%), and disagreement that performance assessment should be done through a quantitative (92%) and qualitative (80%) metrics only.

This study provides the company with greater knowledge to establish and adapt its strategies without losing focus on delivering value in the relationships with healthcare professionals and patients.

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Introduction

Medical Science Liaisons (MSLs) are professionals with both high educational and scientific qualifications who work in companies in the pharmaceutical, biotechnology and other health-related fields¹. Their role was created to serve as a link between the industry and the health professional. The

first MSLs were selected from sales representatives who had a solid scientific background and were able to provide a higher clinical and educational expertise to medical professionals². The MSL role has changed over the years, even the involved departments inside the companies. For instance, 27% of MSLs belonged to sales departments in 2004, whereas in 2010 the percentage dropped to 2%³. In most companies, MSLs do not receive incentives

depending on sales or market share⁴. Furthermore, MSLs do not have a sales or marketing role, despite being in contact with marketing teams to guarantee that messages are precise and consistent⁵. MSLs are involved in product life cycle processes and cover a very wide range of therapeutic areas. Their main mission is to build trust on a scientific level between the company and the health professionals, by carrying out training activities, research (clinical trials, CTs), dissemination of scientific evidence, etc^{1,6}. In recent years, the number of MSLs has increased considerably and they have become a strategic element in the companies' medical departments¹. Despite this, published literature about the role of MSLs, as well as their relationship with health professionals, is very limited⁶⁻¹⁴.

Additionally, given the important contribution that the MSLs provide to the industry, the complexity of their work, and the wide range of issues they address, attempts have been made to measure their role qualitatively and quantitatively. In the past, quantitative metrics have been preferred as they are considered more objective, fact-based, potentially unbiased, and easier to analyse¹⁵. These metrics include time spent in the field or the number of interactions with medical key opinion leaders (KOLs) in that sector. In contrast, qualitative metrics are more difficult to measure and the resulting objective rationale of the value of MSL has traditionally been considered insufficient⁶. In addition, determining these metrics presents certain difficulties, due to the wide range of variability in the MSL role. Two frequently used qualitative metrics are: the skills and competencies of the MSL; and the interaction, discussion, and engagement with the KOL. Objectives and activities in MSLs are not guided by marketing or sales goals, but by medical needs instead⁴. For this reason, metrics applied to sales representatives are not adequate for MSLs. To date, there is no consensus on MSL metrics. Therefore, the aim of the present study was to analyse the available metrics for assessing the MSL and to provide an expert consensus about which ones should be used and how they should be evaluated in order to be as appropriate and feasible as possible due to the wide range of variability in the MSL role.

Method

Study design

This was a nationwide exploratory study conducted by a panel of experts following the online modified Delphi methodology with two rounds of participation. The first round was held from 18th to 29th May 2020 and the second round from 5th to 23rd June 2020. The project was devised and coordinated by the MSL METRICS working group

of the MSL Metrics Working Group of Medicine Association of the Pharmaceutical Industry (AMIFE) in Spain consisting of four MSL/MSL managers. The criteria to define the panel of experts were the following: MSL manager with >2 years in the position; MSL with > 5 years in the position; medical directors; representing companies of different sizes (from micro-businesses with ≤ 10 employees, to large companies with more than 250). In order to build an expert panel of more than 20 members, the steering group invited a total of 48 experts to participate, who were identified analysing their LinkedIn profile. By using LinkedIn website, the steering group sent a mail to experts explaining the project. The recruitment period lasted one month.

Questionnaire

The steering group developed a questionnaire based on: internationally available literature about MSL metrics; their experience as MSLs; and metrics developed by the main MSL associations¹⁶⁻²⁰. Initially, a PubMed search was carried out using the keywords: "medical science liaison" and "metric", however, no results were obtained. For this reason, the information held by the MSL associations themselves had to be accessed. After developing different constructs and items, two independent (not involved in the project) experts in the field revised them to ensure that they were fully understood and valid for the questionnaire. The questionnaire consisted of 52 items, divided into 3 domains, according to the type of metric: quantitative, qualitative, and general. To avoid misunderstanding, a short definition and an example was enclosed with each item.

Determination of the degree of consensus

A 5-point Likert scale was used for the responses to each item: strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. After the first round, the percentage of each response was determined for each item. A second round was held in order to obtain consensus on those items where there were discrepancies. A consensus of agreement was established when more than 75% of the participants responded with 'agree' or 'strongly agree' for the corresponding item (Figure 1).

In the same way, a disagreement was defined when more than 75% of the participants answered 'disagree' or 'strongly disagree' to the corresponding item. When the two possible consensus options were not met, it was established that there was no consensus on the corresponding item.

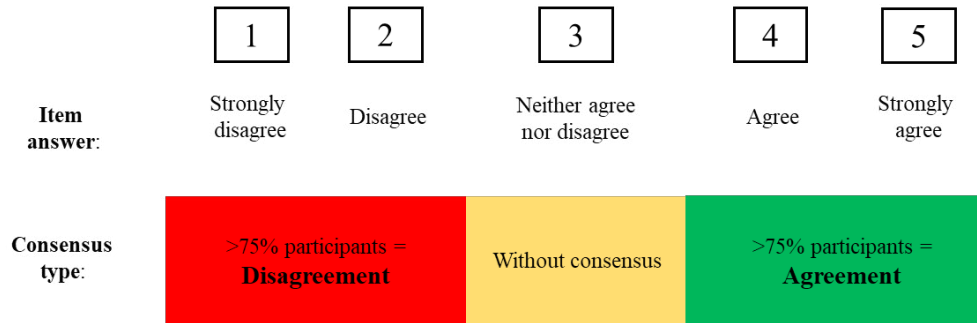


Figure 1. Types of answers for each of the items and established consensus.

results

A total of 28 out of the 48 experts who were contacted started the Delphi process. One medical director, 11 MSL managers and 16 senior MSLs from 19 different pharmaceutical companies participated. The response rate in the first round was 89% (25 out of 28 experts) and 100% in the second round (25 out of 25). After the first round, the experts reached consensus on 20 (38.5%) of the 52 items evaluated: 18 with an agreement and 2 with disagreement. The degree of consensus for the metrics assessed in the two rounds of the Delphi method is shown in Figure 2.

An agreement on quantitative metrics was reached in 10 of the 27 items (two items on number of interactions with KOLs, two items on number of interactions with other health professionals, one item on research support, two items on conference support and attendance, two items on internal support, and one item on dissemination of scientific information). An agreement was reached on qualitative metrics in 7 of the 22 items (one item on skills and competencies, two items on *stewardship*, one item on *internal feedback*, one item on *external feedback* and two items on *insights*). In the general metrics, there was an agreement on item 50 (“The measurement of each of these metrics should vary according to the product life cycle”) and disagreement on items 51 (“The application of quantitative metrics is sufficient to assess MSL performance”) and 52 (“The application of qualitative metrics is sufficient to assess MSL performance”).

In the second round, the experts reached consensus on another 8 (25.0%) of the remaining 32 items. Five were in agreement (three quantitative items: one on number of interactions with other health professionals and two on dissemination of scientific information; and two qualitative items: *internal feedback* and *advocacy*) and three in disagreement (two on quantitative items: research support and conference support and attendance; and one qualitative item: skills and competencies). Thus, consensus was reached on a total of 28 (53.8%) of the 52 items: 23 in agreement (44.2%) and 5 in disagreement (9.6%).

No consensus was reached in 24 (46.2%) of the items. The metrics that produced the greatest variety of opinions were those relating to time in the field (reaching consensus on none of the three items), feedback (*reaching consensus on two of the five items*) and feedback (*reaching consensus on only one of the four items*).

discussion

Assessing and determining the role of an MSL is as important as it is difficult. To date, there is no consensus on the evaluation of MSL metrics. There is no solid scientific evidence that has been published so far and it does not offer a global consensus approach to the assessment of MSL performance¹⁶⁻²⁰. All the publications highlight the need to design a metric system that reliably represents the work of the MSL.

About a decade ago, the industry started to use the combined model of quantitative and qualitative metrics when communicating the value of the MSL to internal stakeholders²¹. Since then, whether due to the heterogeneity in the functions of the MSL or the changing environment and regulations in which it is involved, truly diverse metrics have appeared and the quality of the MSL’s work has not been clearly identified. According to a 2010 survey, MSLs believe that the metrics currently established by companies do not adequately represent their roles or contributions²².

Although our study has reached a consensus that many metrics should be implemented, the difficulty of doing so has become apparent. On the one hand, quantitative metrics are generally more obvious and more widely used. They make it easy to determine whether or not a goal has been achieved, but do not provide information on the reason behind it. The number of MSL interactions with KOLs and other HCPs in a given time are the most commonly used quantitative metrics in the pharmaceutical industry^{23,24} and they encompass face-to-face

Metric type	Item	Statement	Round 1 (%)	Round 2 (%)
Time in the field	1	MSL field time reflects the value of the MSL profession or activity	36	28
	2	MSL field time should be a metric that is part of the assessment of MSL performance	60	68
	3	MSL field time must be a predefined value	40	40
Interactions with KOL	4	The total number of interactions (face-to-face and virtual) of the MSL with KOLs should be a metric that forms part of the assessment of the MSL's performance.	76	-
	5	Face-to-face interactions of the MSL with KOLs carry the same weight as virtual interactions (calls, video calls, etc.) as long as there is scientific exchange	76	-
Interactions with healthcare providers	6	There must be a predefined minimum number of MSL interactions with KOLs per unit of time	60	68
	7	MSL interactions with other HCPs (other healthcare providers who are not KOLs) add value to the company	56	-
Research	8	It is necessary to measure the number of interactions of the MSL with other HCPs (other health professionals who are not KOLs)	44	-
	9	The number of interactions of MSL with other HCPs (other health professionals who are not KOLs) has the same relevance as the number of interactions with KOL	36	32
	10	MSL face-to-face interactions with other HCPs (other health professionals who are not KOLs) carry the same weight as virtual interactions (calls, video calls, etc.) as long as there is scientific exchange	68	68
	11	The number of IIT/CTs-related interactions (including follow-up) should be measured to assess MSL performance	76	-
Conferences	12	The number of research proposals made or endorsed by the MSL should be measured	56	68
	13	There must be a minimum number of research proposals made or endorsed by the MSL	72 (-)	88
	14	The impact of the research proposals made by the MSL should be measured	64	72
	15	The number of conferences attended should be measured to evaluate MSL performance	52 (-)	80
	16	Whether the MSL is involved in the organisation of scientific activities related to the conference (symposia, round tables, medical stand) should be measured	76	-
In-house support	17	The number of conference sessions attended by the MSL should be measured	48	56
	18	The number of conference interactions between the MSL and KOLs, other HCPs or other stakeholders should be measured	88	-
	19	The number of MSL interactions with in-house staff should be used to assess MSL performance	56	72
Dissemination of scientific information	20	The number of internal trainings provided by MSL to in-house staff should be used to assess MSL performance	88	-
	21	The contribution of the MSL to the development of the company's strategy should be measured	92	-
	22	The dissemination of scientific information of the MSL should be measured by the number of sessions delivered by the MSL	56	68
	23	The number of requests for information to the MSL from KOLs or other stakeholders should be measured	60	88
Skills and competencies	24	The number of sessions delivered reflects the impact of the MSL	44	36
	25	The number of HCP attending the sessions delivered by the MSL should be measured to assess MSL performance	32	24
	26	The weight of the MSL in the dissemination of scientific information should be measured	96	-
	27	The number of MSL scientific dissemination activities per time period (speed/time until impact) should be measured	72	80
	28	MSL skills and competencies are a qualitative metric to assess	88	-
Stewardship	29	The correct way to assess MSL skills and competencies would be through regular exams or tests	64 (-)	84
	30	The correct way to assess the skills and competencies of the MSL would be through the evaluation of the training activities on a yearly basis	44	48
	31	The contribution of the MSL to proactively develop or update the KOL file is a qualitative metric to be assessed	32	-
	32	Assessing the updating of the KOL file would be a qualitative way of measuring stewardship	56	64
	33	The development or updating of the KOL file should be carried out by the MSLs according to their criteria	56	68
	34	One way of assessing the KOL file would be to evaluate the suitability of the KOLs included in the file in terms of the company's needs	80	-
	35	The MSL is required to use specific software for KOL identification	44	44
Internal feedback	36	Feedback from internal stakeholders on the scientific activity of the MSL should be a qualitative metric to assess MSL performance	68	76
	37	Feedback from internal stakeholders should be measured through a survey of MSL activity	44	52
	38	The evaluation of the MSL's performance through global surveys by internal stakeholders is objective and valid	32	24
	39	The evaluation of MSL performance through global surveys by internal stakeholders has to be based on objective questions	96	-
External feedback	40	The evaluation of MSL performance by the internal stakeholders should be measured through specific satisfaction surveys (for each common project or activity)	44	36
	41	The feedback from KOL or other HCPs on the MSL's scientific activity should be a qualitative metric to assess MSL's performance	88	-
	42	The feedback of KOLs and other HCPs collected by the MSLs themselves are a valid metric	40	60
Insights	43	The feedback from KOL and other HCPs should be proactively collected through satisfaction surveys	44	56
	44	A spontaneous feedback from a KOL and other HCPs has the same weight as one proactively requested by the company	44	48
	45	The insights collected and conveyed by the MSL should be a qualitative metric to assess MSL performance	88	-
	46	The number of insights per unit of time is a valid metric to evaluate MSL performance	28	24
Advocacy	47	The value provided by the insight (collected and conveyed by the MSL) to the objectives of the company must be weighted	80	-
	48	Change in KOL attitudes or beliefs based on interactions with the MSL should be measured to assess MSL performance	72	72
GENERAL ASPECTS	49	To assess advocacy objectively (interaction, discussion and engagement with the KOLs), the degree of compliance should be measured against a previous advocacy plan for each KOL or group of KOLs	68	76
	50	The weight of each of these metrics should vary depending on the life cycle of the product	96	-
	51	The application of quantitative metrics is sufficient to assess MSL performance.	92	-
	52	The application of qualitative metrics is sufficient to assess MSL performance.	80	-

Figure 2. Degree of consensus for the metrics assessed in the two rounds of the Delphi method. MSL, medical science liaison; KOL, key opinion leaders; HCP, healthcare provider; IIT, investigator-initiated trials; CT, clinical trial; stakeholder, external and internal parties of interest to the company. Green represents a consensus of agreement, red represents a disagreement, and yellow represents no consensus. In the latter, the negative sign within a parenthesis means that the answer is in the direction of disagreement (in the rest of the percentages where there are no parentheses, the answer is in the direction of agreement).

or virtual interactions, the interaction type, and even the location of the interaction. Our study clearly shows the agreement that both quantitative metrics should be measured, and that virtual interactions have the same weight as face-to-face interactions with both KOLs and HCPs. Given that our study was conducted after several months of lockdown during the coronavirus pandemic, it is quite possible that this had an impact on the change in perception of virtual interactions, which are now on a par with face-to-face interactions. Time spent in the field is another quantitative metric. MSLs distribute their working time on administrative and updating tasks, preparation, self-training, and internal and external relations, using both through face-to-face and virtual contacts. Companies may establish this 'time' by considering all of these characteristics or only some (travel times, waiting times, time spent in direct interaction, virtual interactions, etc.). Despite being one of the most widespread metrics which is never missing in any reporting system, our study did not reach a consensus on it being a necessary valuation metric. This is evidence of

the "serious" lack of homogeneous and complementary understanding of this important metric.

Other widely used quantitative metrics are: the number of interactions with other stakeholders (such as the nursing, pharmacy, administration staff, with the exception of KOLs); support for research and clinical trials (number of CTs or studies in which the MSL is involved, completed in a period of time, number of interactions related to these trials or studies, etc.); support and attendance at conferences over a period of time (number of events attended, whether they are international, national, regional or other); internal interactions with other departments (number of training sessions, presentations, responses to queries, or different meetings); or the dissemination of scientific information to external stakeholders (number of sessions in hospitals, health centres, number of conference presentations or participation in other events, or number of external stakeholders reached through these sessions).

Regarding research support, considering both investigator-initiated studies and CTs, our study underlines

the agreement that the MSL should be acting as support and, therefore, that it should be considered as a metric. However, there is no agreement on how to measure it. Also, there is consensus that there should not be a minimum number of research proposals presented or endorsed by the MSL^{25,26}. In the case of conference support and attendance, there is no agreement as to whether the number of conferences attended by the MSL should be measured. In fact, the majority of participants in our study (80%) rejected such an idea, presumably because, although attendance at conferences forms part of the MSL's role, the metric should focus on analysing the capture of *insights* rather than solely on the number itself. Furthermore, the MSL's attendance at conferences is often limited by internal company policy¹⁵. Internal support to other departments is also important in assessing MSL performance. Our study shows that the contribution of the MSL to the development of the company's strategy as well as that related to internal support (training, doubt resolution, internal scientific reference, etc.) should be measured. Regarding the dissemination of scientific information, a fundamental pillar of the MSL's role, there is no consensus that the way to measure this relevant metric is in terms of the number of sessions but rather in the importance of such dissemination and the number of scientific dissemination activities per unit of time.

On the other hand, qualitative metrics are a challenge for the industry, as they are difficult to assess and take longer to measure. They tend to be fewer in number than quantitative metrics and with a higher degree of heterogeneity^{21,25}. Nevertheless, they provide significant information on the value provided by the MSL. One of them is the determination of skills and competencies, including scientific knowledge, communication skills, clarity of exposition, ease of making presentations, public speaking, social skills, efficient networking, or the ability to analyse the territory and selecting KOLs^{15,26}. The qualitative metrics used are shown in Figure 2.

In our study, the first qualitative metric to be included was the assessment of the MSLs skills and competencies and it received a high degree of acceptance (88%). The metric skills and competencies encompassed the qualitative assessment of the MSL's skills through his/her daily activities, and included scientific background, training, communication skills, public presentations, implementation and management of scientific projects. Given that certain competencies and skills are required for the role of MSL, determining how they evolve and improve is a useful and reliable way to assess their performance. However, our study also showed that the right way to assess them is not through regular exams or tests. It is important to bear in mind that in Spain as in other countries, MSLs do not always receive specific training programmes to become experts in their therapeutic areas and in the skills needed

to perform their duties^{23,27,28}. The second qualitative metric used in our study was the *stewardship*, which would be the qualitative assessment of territory management. It may include the compilation or analysis of the KOL file, establishment and updating of the list or ranking, dynamic management of the KOL file and the achievement of associated goals. It represents the pillar on which a company's entire medical plan is based. We found a high consensus regarding considering it a metric for assessing the MSL (84%) and that the KOL file should be assessed according to the needs of the company (80%). There has been no consensus on whether it should be based on the MSL criteria or whether specific software should be used. An important question in this regard is how to develop a KOL ID that is effective and efficient. Our third qualitative metric was *feedback* from internal *stakeholders*. This is quite a controversial topic as it involves the evaluation of MSL's performance by colleagues from other departments. This metric obtained a high consensus for its implementation, especially if it is carried out through global surveys and objective questions (96% of participants). However, no consensus was reached on the proposed forms of evaluation. Similarly, the *external* feedback qualitative metric (from HCP and KOL) also achieved a high degree of consensus (84%) on its suitability for use, but not on how it should be performed. For example, it is not clear if *feedback* collected by the MSLs themselves is a valid metric, or whether satisfaction surveys on a proactive basis should be used. There are also doubts as to whether a proactive survey and spontaneous *feedback* by the health professional hold the same weight. The next qualitative metric was the management of *insights*, which produced a high level of agreement (88%) in assessing the role of the MSL as well as to the value it provides to the company's objectives (80%). On the contrary, the number of *insights* per unit of time was not considered to be a valid metric for assessing MSL performance. The last qualitative metric evaluated in our study was *advocacy*. This metric determines the influence of the MSL in the KOL, as a result of their interaction, through discussions and argumentation conveyed by the MSL to the KOL and adopted by the KOL. Having an *advocacy* plan is identified as paramount to assessing the quality of the MSL. A change in trend caused by the MSL should always be measured, however they are difficult to measure as these changes are not sudden. Our study found an agreement (76%) that for *advocacy* to be assessed objectively, the degree of compliance with a previous plan should be measured.

In our opinion, qualitative metrics are perhaps more valuable than quantitative metrics, as they relate to the MSL's competitive intelligence and, to a large extent, the *insights* gathered from their interactions with KOLs. Given the great diversity of existing metrics, our study's main purpose was to provide a consensus that can be

used as a reference by the medical departments of different companies. It is important to underline the consensus that MSLs should not be assessed by quantitative (92% of participants) or qualitative (80%) metrics alone, making it clear that a combination of both metrics is necessary to understand MSL performance.

In our study, some of the items did not reach consensus, and thus they probably do not represent adequately the performance of an MSL. However, the discrepancy in opinions among experts, for some items, could derive from the (large) variability in the MSL job description for each MSL, making difficult the generalization of the MSL performance by some measures. In addition, none of the experts suggested poor understanding with an item (and asked for feedback).

Also, numerically, there was more lack of consensus in task-based metrics. What our results really reflect is a profound need to revise the actual metrics system as both qualitative and quantitative are controversial. The present study shows that there is a generalized failure to reach an appropriate balance between task – or strategy-based metrics when measuring MSL performance. This consensus on metrics provides the basis for the metrics to be used. There is a need to continue to analyze the way in which the metrics should be evaluated. This fact directly highlights the difference between quality and quantity, and the complexity of these measurements.

In conclusion, the present study offers a consensus with a comprehensive approach to the assessment of MSL performance through quantitative and qualitative metrics. The improvement in determining the role of the MSL through established and broadly defined metrics is directly proportional to the professional growth of the MSL and this approach provides the company with greater knowledge to establish and adapt its strategies without losing focus on delivering value in the relationships with healthcare professionals and in the health and quality of patients' lives.

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