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MEDINT AND THE CONTOURS OF THE DEFINITIONAL QUESTION: POSSIBILITIES FOR SOLUTIONS

Abstract: *Medical Intelligence is not a new field of medicine or intelligence, but with the advent of the pandemic, its perspective has broadened and its definition requires the consideration of multiple theoretical and methodological factors that have not been considered until now. This paper aims to show, through a different perspective, the new areas and issues on which Medical Intelligence is becoming more and more a crucial element. The consideration presented makes use of the studies and insights that have been carried out and continue to be developed as part of the National Medical Intelligence Group as part of the SOCINT – Italian Society of Intelligence established in March 2023 at the Catholic University, Milan under the direction provided by Marco Lombardi and the coordination by Barbara Lucini. Finally, this paper traces lines of work that orient in an innovative way the field of Medical Intelligence and its future developments.*

Keywords: *MedInt; cognitive perspective; security science; security; digital ecosystems*

Introduction

The role of Medical Intelligence, in a systemic vision, is of great importance from many points of view and now requires an explicit methodological and functional definition: medical and health data have their dimension of Intelligence that is little explored and not organized at all in procedures rooted in shared practices. The recent pandemic has further underlined the criticality

and delicacy of the issue, challenging the medical sector to face interconnected threats. Just remember that the echo of the interventions of medical foreign teams in the Italian hospitals, in the early stages of the pandemic, has not been extinguished. In particular, the connections with relations between States and the geopolitical context of the moment in this analysis are to be considered as essential elements in the understanding of what Medical Intelligence is, its areas of intervention and above all the lines of interpretation of the information collected. And still, the question is if that "foreign help" was more interested in the acquisition of crucial information for the management of the threat, rather than an interest in bringing help. During the same pandemic, the Lazio region suffered the lack of confidential health information, concerning personalities, including institutional ones, and the blocking of vaccine administration procedures. From the former perspective, at the outbreak of the Russian-Ukrainian War, an attempt was made to analyze and compare archival and recent images of President Putin, to assess his state of health. The same can be said about the Princess of Wales' health and her current illness. Still, the attention of the media that feeds the public perception on these issues has lately focused on the health conditions of US President Joe Biden and the related ability to carry out his role.

On the opposite and positive side, to cope with the pandemic, models have begun to be developed capable of identifying the presence of the virus in the patient through the use of voice and type of breathing. This was achieved by studying thousands of calls for help, modeling the caller's exhalation and inspiration, and working out appropriate types. In general, the pandemic drove to a different use of medical, health and socio-biological information, facing a broader security perspective than the safety one, implemented to support State interests.–After the pandemic, in the field of security and intelligence studies, a discussion emerged: Medical Intelligence become an area of research and study that needs to be better specified and deepened especially considering the social, communicative, and technological complexities of contemporary societies.

This special issue of the Security Science Journal tries to make a point in the discussion, driving the scientific and intelligence community to better identify the specificity of Med Int (Medical Intelligence), and following three conferences held in Milano (in 2022, 2023, and 2024) and the establishment of the Italian National Study Group for Medical Intelligence, within the SOCINT (Società Italiana di Intelligence – Italian Intelligence Society[1]) in March 2023 at

[1] https://www.socint.org/

Catholic University of Sacred Heart, Milan under the direction provided by Marco Lombardi and the coordination by Barbara Lucini[2]. The current issue offers a series of contributions that explore Medical Intelligence along three thematic lines. The first is the "Medical" dimension, whose objective is to define and drive the medical component of Medical Intelligence, especially in light of past experiences. In this case, it is a question of understanding the imbalance often seen in favor, in terms of attention and skills, of the medical component and less of the intelligence component. The objective is to define the contribution of the medical dimension to the specific interests of intelligence activities.

In this regard, Kanayama's contribution to the use of medical tools for National Security purposes is essential, as is Shay's contribution to the biological threats that can be exploited by criminal groups and other unconventional actors present in the current complex and fragmented geopolitical scenario.

The second is the "Intelligence" dimension, which needs to limit a field (the medical one) and define tools and methods for using medical, health and biological information for national security purposes, thinking above all about the development of new threat scenarios. In these terms, the contributions proposed by Trifunovic and Capezzani provide from different perspectives arguments and theoretical elaborations on the "Intelligence" component of medical intelligence, addressing the declinations related to the relationship between intelligence, security, safety and the organizational and communicative dimension of the intelligence component.

The third dimension includes the variety of field experiences and scientific perspectives brought by the numerous authors: Colonna Vilasi analyzes the organizational dimension in the United States of America, and Buoncompagni introduces a fundamental topic to understand the public dimension of medical intelligence and how the media describe facts or events related to medical intelligence and their repercussions in public perception and the introduction of this information into local media circuits; finally, Warnes and Harrison address the specific cases of the application of Medical Intelligence to the areas of counter-terrorism and counter-insurgency, proposing a wide-ranging vision linked to current scenarios and current threats.

In general, it can be said that the objective is to answer the question of what Medical Intelligence is, being aware that "*it's not that there isn't an answer*", there are too many. It is therefore a question of delimiting Medical Intelligence because, in the context that characterizes

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the rapid changes in threats, the current definitions do not seem adequate to the needs of Intelligence.

For example, recent history allows us to highlight some possible scenarios that are a specific concern of Intelligence, and not of medicine:

1. the subtraction of health data and elaboration of interpretative models from open information to identify the health status of significant institutional actors;
2. the modification of the health data of significant players, or entire clusters, to generate alarm and produce threats;
3. the lack of communication awareness of involved healthcare personnel when dealing with information that may have national security implications;
4. the manipulation (hacking) of medical machines, in diagnostics, drafting reports up to interference during medical operations.

One of the main relevant issues when dealing with Medical Intelligence is the consideration of its three dimensions: safety, security, and intelligence, which in today's global world are interdependent and interconnected (see contribution by Darko Trifunovic). For instance, medical safety includes all those technical-technological protocols, from architectural plans for the construction of a hospital or any other medical facility to the organization of security and the implementation of a surveillance system. In the same way, all those internal and external risks, such as the dangers of various diseases, viruses, and other pathogens, whether they are caused by nature or by man, can be subsumed under the part of man or nature and for this reason, it addresses the security dimension of medical issues.

Moreover, intelligence implies the application of the intelligence cycle in the field of medicine, and it implies the collection and processing of data, assessment of data, and predictions of all those risks that have so far remained unknown to members of the intelligence community, because what doctors of medicine know, ordinary people do not know, and vice versa. Alongside these risk scenarios, the information concerning the healthcare sector also provides opportunities if elaborated in the light of increasingly complex and intelligent models. On the other hand, the progressive, rapid integration between technology and medical science, without any reflection on the vulnerabilities that innovation can generate in the dimensions contiguous to healthcare, opens scenarios of reflection of great interest for intelligence, both in

the role of defending the strategic information to be protected and in a more pro-active role of acquiring strategic information.

MedInt: perspectives and definition

How do Intelligence and Security Sciences face these new perspectives if we consider the present definition of Medical Intelligence? A summary of the definitions (Marble, 2020) leads us through Jarcho's proposal defining Med Int as "*the application of medical and biological knowledge to the national defense*" (Jarcho, 1991) it could fit 30 years back considerations, opening the field at that time, but it seems too broad especially when national defense changed a lot since the Nineties. "*A systematic process of collection and analysis of health hazards, health threats, health risks and medical capabilities in a specific area*" (La Gioia, 2015), puts together risks and opportunities (and vulnerabilities) focusing on a specific field, as usually requested by military operations. From this side, the prominent one, the US Ministry of Defence language is exclusively related to the military: Medical Intelligence is "*that category of intelligence resulting from collection, evaluation, analysis, and interpretation of foreign medical, bio-scientific, and environmental information that is of interest to strategic planning and to military medical planning and operations for the conservation of the fighting strength of friendly forces and the formation of assessments of foreign medical capabilities in both military and civilian sectors*" (Office of the Chairman of the Joint Chiefs of Staff, 2022). Even the cycle of Intelligence is included the target is with military dimension, as expected by DoD. The NATO Alliance proposes a broad and ambiguous definition, according to which Med Int it is the "*intelligence derived from medical, bio-scientific, epidemiological, environmental and other information related to human or animal health*" (Military Committee Terminology Board, 2021).

There is nothing wrong with these definitions, but there is also nothing specific enough for them to be useful for Intelligence as a new operational weapon of Cognitive Warfare, and not for intelligence as a 'process of intelligence' and knowledge. In essence, the definition of Med Int that is sought must apply to a specific organizational context, the Intelligence sector, and not characterize only an information management process. In this perspective, these definitions express limitations to be aware of. They are too focused on the objectives of military defense and security, on the other hand, the area in which Medical Intelligence traditionally falls. Indeed,

they do not take into account the increasingly close relationship between civil and military dimensions and do not sufficiently consider Medical Intelligence as a complex multidisciplinary process. Finally, they refer exclusively to a defensive intelligence approach and not a proactive one in dealing with threats to the state.

The reasons for these errors are to be found, as already anticipated, above all in the military origin of Med Int but they also incorporate a vision that pays too much attention to the medical dimension, which prevails over the intelligence dimension, both about the ethical and legal concern implicit in the medical data. A perspective that even with more difficulty allows us to define (Medical) Intelligence as a practice to gain a competitive advantage, therefore not only as a preventive action but as an intrusive and pro-active one.

In this regard, the innovative contribution that we want to bring concerns the definition of Medical Intelligence, focusing not only on the information process but also on the organizational component of intelligence.

For this reason, it is useful to start from the definition proposed by Lucini (2023*): "an information process relating to interconnected and interdependent biological, health and medical issues texts socio-technical sources that make use of information sources present in social ecosystems with the aim of supporting decisions to preserve national and international security in compliance with ethical and legal principles."*[3]

This definition considers some essential elements for the delineation of the discipline of Medical Intelligence understood as a proactive and strategic intelligence activity:

1. Information in the medical, health and biological fields is the central factor from which the Medical Intelligence process starts;
2. this information and data of interest are not detached from reality but are widely placed in specific digital socio-technical ecosystems that encompass the characteristics of geopolitical scenarios, international relations and relations between institutional and non-institutional actors as well as the threats and vulnerabilities typical of these social environments;

[3] In Italian in the original text: *"un processo informativo relativo a questioni biologiche, sanitarie e mediche interconnesse e interdipendenti a con testi socio-tecnici che si avvale di fonti informative presenti in ecosistemi sociali digitali con lo scopo di supportare decisioni per preservare la sicurezza nazionale internazionale nel rispetto dei principi etici e legali."* (Lucini, 2023)

3. the need to provide for and regulate specific ethical principles and regulations regarding the use of data and above all the technological component that plays an important role in medical intelligence processes and activities

This first comprehensive definition considers a proactive perspective on medical intelligence and includes a specific focus on the context within which detailed intelligence activities related to this sector can be identified. The following examples of the Medical Intelligence approach and its fieldwork orient and allow the development of a Medical Intelligence model that will be discussed later.

The Approaches and Fieldworks of Medical Intelligence

The topics of Medical Intelligence have leapt to the headlines in recent years, without leaving the Media. As anticipated, this is certainly due to the threat of the pandemic that shocked the world in 2020, but also due to the characteristics of a digital technological system that allows interconnection between sources and the sharing of large amounts of data in a short time. Any kind of data is, therefore, an object of interest and exchange, which becomes strategic in the so-called cognitive warfare. It is simple to recall how an increasingly "connected" healthcare system can only attract computer piracy. It suffers from technological vulnerabilities and of lack of awareness by the health operators referring to the valuable information for national security. Let’s go back a few months to stress some various topics that are of interest to the Medical Intelligence approach.

In September 2023, the Wahington Post wrote that Western intelligence agencies feared that China had exploited the COVID-19 pandemic to gather a vast amount of worldwide human genome data, to be exploited to gain an advantage in the 'genetic arms race' with the US. During the pandemic, Beijing sent portable 'Fire-Eye' genetic analysis laboratories to numerous countries, which not only detect coronavirus infections by analyzing virus fragments but are also capable of carrying out human genome analysis.

A few months later, in December, the journal The Lancet, highlighted a new study stating that during exposure to a radiofrequency electromagnetic field, resting blood pressure could be altered. Hence, we learn how ailments and ischemia could also be induced at a distance.

For some years now, the British National Health Service (NHS) has introduced Babylon, a remote examination system. The doctor and the patient interact through an App that during the conversation shows the doctor the patient's health history while transcribing the patient's words and interpreting them: it highlights the relevant symptoms reported by the patient, and possible links with previous illnesses and then assists the doctor in making a diagnosis. Not only that, the software reads the patient's facial expressions and posture and informs the doctor of any stress or discomfort the patient is experiencing.

Data from hacker sites and dark web findings indicate that in the last two months of 2023 alone, more than 1.5 terabytes of health data (around two million files) stolen from various Italian facilities were leaked. This data includes medical records, photographs of patients with skin cancer, reports of sexual abuse, examinations for hereditary diseases, and lists of COVID-19 vaccines. Some files contain the first name, surname, and date of birth of people who have been assisted by mental health centers or pathological addiction services. About future scenarios involving Medical Intelligence, one cannot fail to mention the announcement of the first brain chip implantation (January 2024) that opens the way for both enhanced communication and the treatment of neurological disorders.

Another present scenario, but with strong values for future development, regarding the case of North Korea, which since May has been launching hundreds of balloons over South Korea containing rubbish, including human and biological waste.

These balloons and their contents well represent the aspects of Medical Intelligence that are being covered by this piece of writing. In particular, some important elements emerge:

- The use of balloons to send various materials is not new in the context of the cognitive warfare between North and South Korea but has its origins back to the Korean War in the 1950s and for specific propaganda purposes. What is peculiar about these latest launches from North Korea are the biological components used as weapons. The international press reports that the launch of these balloons by North Korea is a response to previous shipments of balloons containing information materials and other types of useful objects such as USBs and flashlights against the North Korean regime and living conditions;
- as reported by Choe Sang-Hun (2024) in the New York Times, in reality, these materials can also be useful traces for understanding life in North Korea and the consumption of the population;

- this case is a useful example of how, despite technological developments and the advent of a digital dimension as a context of relational life, material, physical and biological elements also represent fundamental components of geopolitical aspects and international relations.

In addition, an interesting fact that emerges from this conflictual and continuous tension situation concerns the geopolitical scenarios, the relations between North and South Korea and the structure of the actors who intervene in this area: not only institutional actors but also non-governmental and voluntary organizations that support the propaganda and cognitive warfare of one or the other country, with a priority role represented by Protestant evangelicalism for South Korea. This is an example of how medical, health and biological data and information are located within socio-technical and socio-cultural ecosystems that need to be known by those who intend to analyze potential threats and vulnerabilities, with the aim of identifying possible proactive actions for national and international security.

A different framework and innovative definition of MedInt

For so many reasons, therefore, it is necessary to redefine the cognitive field of Medical Intelligence, and its methods and tools, not to exclude what has been done so far, but to add a perspective that is limited and functional to the competencies of the organizational compart of Intelligence. This is within a methodological and operational framework in which the rights and protection of the patient, who is the bearer of the information, intersect; the awareness of the potential use for national security purposes of medical data by personnel increases, and a specific competence for the intelligence operator to operate in the new technical-medical context is developed. This means considering an approach that is consistent with the new perspectives of Intelligence that goes beyond 'spying' (Andrew, 2019), to discover something the adversary wants to keep hidden, while today means having the ability to connect in a meaningful pattern, hyper-complex systems of weak signals. Signals that, taken individually, have no value. Medical diagnosis, especially in the preventive phase, goes exactly in this direction: anticipating disease by reading weak anticipatory signals. Intelligence prevents other diseases, in different contexts, but with a similar perspective as the doctor. Therefore, healthcare personnel also need to increase

their awareness of the potential for using biomedical data for security purposes, both by intelligence agencies and by the doctors who have them.

This perspective and the definition considered above allow us to arrive at an intelligence model that could be called intelligence of medical, health, and biological sources.

This theoretical-methodological model, which is the foundation of an innovative approach to what has so far been considered Medical Intelligence, consists of the following elements:

- Data and information are placed at the center of this systematization because, far from being

able to be identified as pure information (Floridi, 2011; De Ruvo, 2023), they must be conceived as contextualized and meaningful information (De Ruvo, 2023): a sense precisely to which intelligence activity, as a cognitive and exploratory activity of potential risks and threats to national and international security, it must fully return to address itself both from a methodological perspective and from a theoretical and interpretative perspective;

- the strategy is recognized from a cognitive perspective as encompassing a context that is no longer a scenario but an actor

(Lombardi, Burato, Maiolino, 2015; Lombardi, Maiolino, Lucini, 2020) in the broader framework represented by socio-technical-cultural ecosystems, within which are found the interpretations and inferences made possible by the identification and understanding of data networks and the types of relationships that emerge from them;

- socio-technical-cultural ecosystems are in turn made up of cognitive, communicative and

cultural codes that characterize the relationships between different ecosystems. In these ecosystems, there are typical vulnerabilities, weak signals and threats that must be understood and intercepted by intelligence activity understood as understanding a system of relationships in complex digital contexts;

- the method, the methodological approach and the tools (Antiseri and Soi, 2013). In consideration

of the object of analysis, the relationships between digital socio-technical-cultural ecosystems and the medical, health, and biological data collected, the most effective methodological approach to conduct studies and analyses concerns the ethnographic one considered in its digital declination to understand both the instances coming from physical and online environments, overcoming the dichotomy between the two dimensions.

In particular, the method does not only concern the collection, use and processing of data and information of interest for national and international security but also its interpretations that will be possible only in consideration of the context-sensitive nature of the ecosystems considered and the mediated narratives of which they are subject.

In fact, the production of medical and health data must also consider the perception of the agencies and actors involved in the process of co-construction of information assets as well as the cultural codes that give and orient the sense of information.

Specifically, the method falls into the declination of digital humint and osint which, considering the technological levels currently reached, allows the acquisition and validation of data ensuring a good level of inference and interpretability.

Therefore, it becomes clear that at the center of this reflection, the perspective related to Medical Intelligence changes and focuses on the dimension of intelligence understood both as a cognitive process and as an information method for understanding and interpreting medical and health data in the current complex scenarios.

Finally, this perspective makes it possible to systematize training protocols for both health and safety personnel, thus allowing the development of products that can guide decision-makers in consideration of the analyses carried out.

Future perspectives on MedInt

In the current and future scenario, it is possible that a relevant profile of sub-threshold conflict, understood as the threshold expressing the limit of kinetic activity, will remain. This means moving towards a generalized social somatization of widespread conflict (widespread and pervasive violence), which calls for intelligence to investigate the signs that allow the evolution of this conflict to be measured. Thus, the individual, who is a complex system of biological and social data, is potentially a very sensitive "sensor" of the changing conditions of the scenario in which he or she is immersed and is, therefore, the object of observation for understanding the state of the ecosystem.

The reflection on Medical Intelligence, initiated with the conferences that preceded this special issue of the Security Science Journal, is accompanied by the broader reflection on the Intelligence that is needed in the world in conflict, the cognitive dimension of which is

emphasized. In this vision, the traditional Intelligence cycle can adapt to the new risk scenarios by organizing itself in four phases (Cycle C4 in Italian), which provide for Knowledge (Conoscenza), through a process of acquiring information concerning objects and relations (complex systems); Understanding (Comprensione), which transforms data into information through the interpretation that produces Awareness (Consapevolezza) of the scenario, risks and threats to which one is exposed. It ends in Communication (Comunicazione), the fundamental process of the relationship between Intelligence and a country's Governance that facilitates decision-making.

This paradigm proposal and its four constituent elements meet the model of approach to Medical Intelligence proposed in Lucini (2023) and consists of a thematic focus that starts from the perspective of intelligence understood not only as a process of collecting and analyzing information but as a strategy for understanding a phenomenon and as in the specific case of medical intelligence, it focuses on the identification of the networks of relationships that characterize the digital socio-technical-cultural ecosystems; from a field that is no longer only military but also considers the civil, industrial, social, and organizational ones; from a strategic dimension that orients the tactical and operational ones; from a purpose that no longer belongs solely to the defensive sphere but also includes proactivity to ensure national and international security in their dual physical and cybernetic meanings.

Medical Intelligence understood in this way can make it possible to expand the intelligence sector in an innovative way starting from medical and health information, considering it with particular attention in the light of the relational perspective and the system of digital ecosystems that represent the current configuration of the relational actors present in the contemporary world and in consideration of the development of the digital dimension and identities that are develop in it, also of institutional and non-institutional actors, in any case important for national and international security.

In this way, medical intelligence conceived in this way will be able to better respond to present threats and future challenges such as pandemics, risks, medical-health risks, wars, the implementation of new technologies and the exploitation of new technological systems by criminal groups (Lucini, 2023).

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