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REVIEW ARTICLE

COVID-19, Geopolitics, and the Reform of European Pharmaceutical Law: Accelerating Enhanced Medicines Care for Europe?

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ABSTRACT

Given the COVID-19 pandemic and intensified geopolitical disruptions, the European Commission, seeking to govern pharmaceutical supply, faced various problems from within and outside the European Union. The authority subsequently submitted far-reaching proposals to revise, amend, and repeal the European Union's pharmaceutical law. It is against this backdrop that the article examines the different policy impacts on the new pharmaceutical legislation and makes a brief forecast about the extent to which the draft measures, should they come into force as proposed, will contribute to better medicines care in the future. In doing so, the analysis concludes that COVID-19 was a mere accelerator and not the original trigger of most legislative changes. Furthermore, the article argues that, although problems have been identified correctly, some of the approaches to solving them are entrenched in ineffective paths.

I. Introduction

The rapid cross-border spread of SARS-CoV-2 in the early spring of 2020 showed that the European Union (EU), like the *World Health Organization* (WHO), was irresponsibly slow to act initially, given that it had known about the outbreak in China and the strict measures the country's government had implemented in January 2020[1]. More importantly, however, the outbreak demonstrated that the EU was largely powerless to repel the virus; the EU arguably did better in controlling the pandemic's (economic) consequences (cf. Müller[2]). This failure to control the virus caused great frustration among those Member States (MS) that were hit hardest in the beginning, e.g. Italy, and that started questioning, as happened during other crises of the recent past, the 'EU project' itself (cf. Van Middelaar[3]). In the absence of an effective joint EU defence mechanism (cf. Villareal[4] on, inter alia, disease surveillance information at EU level during the pandemic), individual MS initiated ad hoc protective measures at and for the domestic level. One example was the intra-European (and in some cases extra-European) export restrictions and bans on certain medicines and personal protective equipment such as face masks[5]. Although the European Commission (EC) emphasised the importance of maintaining the Single Market for reasons of health protection[6,7], it did not take any legal action against the export measures introduced and notified by the MS. Since the protectionist behaviour was, thus, lawful, though nevertheless somewhat undesirable from an EU perspective, the EC still appealed to the MS' sense of solidarity (on European solidarity in the case of COVID-19 medicinal products, see Plank[8]). Regarding the later production and subsequent distribution of COVID-19 vaccines and remedies, the EC worked towards a common solution by helping the MS with joint procurement[9,10]. However, although the participants in that joint approach were a 'coalition of the willing', they nevertheless did not cease their additional domestic procurement (cf. Becker[11], in which the German legal scholar Thiele indicates a breach of EU law through additional procurement). Summing up, the practical implications of that EU governance, absent at the very beginning and ultimately only a 'toothless tiger', were not only literally painful and in many cases also fatal for those individuals directly affected by the disease, but also considered dangerous for the political survival of the EU itself[12].

Given the poor EU health outcomes, it is important to bear in mind not only the struggles of the EU with its MS but also those of the EU with third countries, i.e. the foreign trade and public security component. In early 2020, precisely one day before the WHO announced the pandemic, the EU adopted its *European Industrial Strategy* (Industrial Strategy)[13]. In its updated version of 2021, the EC declared the strengthening of the EU's 'open strategic autonomy' to be a main goal, as the EU was identified to be highly dependent, especially regarding active pharmaceutical ingredients (API)[14]. The importance of pharmaceutical autonomy, or rather the lack of it, was immediately demonstrated. Amongst other examples, the abrupt cessation of API production in Wuhan at the start of the pandemic, affecting Indian resale, caused considerable concern for at least medium-term supply shortages in the EU[15]. In addition,

the war in Ukraine, which started in February 2022, affected pharmaceutical supply within the EU in multiple ways. These include cessation of many clinical trials for new medicinal products that had been undertaken in Ukraine and Russia, delayed marketing authorisation for drugs in the EU[16], and the rise in energy prices: the work of component suppliers such as those in the chemical industry is energy-intensive and pharmaceutical wholesalers cannot, at least in Germany, pass on their increased costs to the consumer as their regulated sales prices have not been adjusted[17,18].

However, a lot has happened since. As early as November 2020, the EC presented its idea of an *EU Health Union* (Health Union), strengthening the EU's protection of health[19]. The (now updated) Health Union consists of four major overlapping strands of action. Two of these are relevant here: (a) *Crisis Preparedness and Response*; (b) the *Pharmaceutical Strategy for Europe* (Pharmaceutical Strategy)[20]. In adopting the Pharmaceutical Strategy, the EC made clear that it already had in mind adjustments to the European pharmaceutical policy to target future crisis preparedness, but also other aspects, such as promoting research and development (R&D) in neglected areas[20].

Shortly before the WHO declared the pandemic over in May 2023[21], the EC proposed fundamental changes to the European legal framework for pharmaceuticals[22]. At their core lie two proposals for an extensive renewal of the general pharmaceutical legislation (Directive 2001/83/EC and Regulation (EC) No 726/2004, together General Legislation) and of the specific legislation on medicinal products for rare diseases (Regulation (EC) No 141/2000, Orphan Regulation) and pharmaceuticals for children (Regulation (EC) No 1901/2006, Paediatric Regulation)[22]. Specifically, these legislative proposals consist of a new directive (Draft Directive)[23] and a new regulation (Draft Regulation)[24] amending, revising, and replacing the old laws (together Draft Framework). The Draft Framework's specific objectives are: (a) ensuring timely, equitable access to safe, effective, and affordable medicines for all patients within the EU; (b) enhancing security of supply and ensuring permanent availability of medicines for all patients within the EU; (c) providing a regulatory framework that fosters innovation, competition, R&D, and the production of medicines in the EU; (d) enhancing medicines' environmental sustainability[23,24]. These objectives, as well as the fact that the evaluation of the General Legislation had been planned before COVID-19 hit[25], indicate that the political background of the reform is multi-faceted. These legislative proposals borne of the Pharmaceutical Strategy are only two pieces of the even bigger puzzle of new pharmaceutical governance, which also includes – as well as projects of the Health Union and the Industrial Strategy – the *Intellectual Property Action Plan*[26].

It is against this complex background that this article seeks to (a) identify and analyse the specific policy impacts, especially those of the COVID-19 crisis, on the various legal proposals and already enacted measures related to pharmaceutical supply. Moreover, the article (b) discusses to what extent the new measures, should they come into force as proposed, will be successful in view of their

respective objective and the overall aim of better medicines care in Europe.

Since it is beyond this article's limits to provide a comprehensive overview, in-depth analysis, and discussion of all new measures, it focusses on a small selection of the key elements of the Draft Framework. To give a sense of the dimension of the aforementioned 'pharmaceutical puzzle' and the various areas of policy by which it is influenced, the work will nonetheless briefly refer to a few related measures.

As a starting point for all further considerations, the article briefly elucidates the complex division of competencies between the EU and its MS in health policy that creates the legal basis, i.e. the legally defined limits for the EU's actions during the health crisis but also for the current Draft Framework. Furthermore, it examines the legal reasons for and the implications of the Draft Framework being divided into two different forms of legal acts. With regard to both legal basis and forms of acts, the article makes a brief statement on the extent to which the Draft Framework stays within these boundaries.

The article is structured as follows. Following a description of the methodological approach (II), the article illuminates the formal legal framework of the Draft Framework (III). It then outlines the relevant norms and analyses their policy impacts (IV). Lastly, the article comes to a conclusion while also giving a brief forecast of the legislations' alleged effectiveness and making some general critical remarks (V).

II. Method

The general approach is to analyse, compare, and interpret relevant legal texts and drafts as well as executive communications and decisions by the EC. This includes foreign and German legal and political monographs, manuals, commentaries and especially journals, but also policy papers by stakeholders and authorities, and newspaper reports.

Specifically, to gauge the political influences on the respective norm, the date of adoption, the explanatory memorandum, recitals, and the literature on the real-life background are examined. Of course, a measure can serve several goals at the same time. In such a case, the article weighs the influences and categorises them according to the measure's predominant objective. The interplay of different influences is shown. For the brief forecast of effectiveness, the article compares the new measures, where possible, to those of the past, refers to current critique, and finally, recognising the uncertainty of forecasts, gives its own assessment.

III. Formal Framework of EU Pharmaceutical Legislation

1. COMPETENCIES IN HEALTH POLICY

Some have argued, in line with long-established theory (famously, Schmitt[27]), that in the case of the pandemic, competencies are just lawyers' ploys and that EU institutions such as the EC cannot hide behind them; rather, (EU) politicians had to act outside the ordinary *legal* framework to meet their *political* responsibility (cf. Van Middelaar[3]). Obviously, there are rightfully a great many arguments against the claim, both generally (cf. Fuller[28], from the point of view of legal theory, to name but one) and specifically for the COVID-19 crisis (cf. Günther[29], referring to MS' behaviour during COVID-19). This article,

for the time being, limits itself to referring to the EU principle of conferral (cf. Article 5(1),(2) Treaty on European Union (TEU)), which stipulates that the EU may act only within the scope of those individual competencies expressly conferred upon it under the TEU and the Treaty on the Functioning of the European Union (TFEU))[30]. It has no right to create its own competency, and acting outside its competencies would undeniably be contrary to EU law[30], offering an opening to arbitrariness.

Hence, as regards health and pharmaceutical policy, Article 168 TFEU is key. Article 168(1) TFEU (also Article 9 TFEU) obliges the EU to take into account in all its actions the protection of health, including, inter alia, combating major diseases, and monitoring, early reporting, and combating serious cross-border threats to health (cf. Article 168(1) Subparagraphs 2,3 TFEU). However, at the same time, Article 168(1) Subparagraph 1 TFEU (also Article 6 Sentence 2(a), Article 2(5) TFEU) clearly expresses that the EU's competencies concerning these matters are limited to supporting, coordinating, and supplementing those measures adopted by MS. Article 168(5) TFEU prohibits any harmonisation measures by the EU. Article 168(7) TFEU reiterates that the EU, by any of its actions, leaves intact the responsibility of MS for their health policies and the organisation of their health services and medical care, including, in particular, the provision of financial resources (so-called 'primacy' of the MS in the area of health policy)[31,32,33].

Article 114(1),(3) TFEU assigns the EU competency for harmonising legislative measures targeting the establishment and functioning of the internal market that may also influence health protection (cf. EUGH[34]). However, to ensure that the prohibition in Article 168(5) TFEU is not circumvented, recourse to Article 114 TFEU is excluded in any case if the main purpose of a measure is to protect health[33]. By contrast, MS must respect internal market rules in their health policies, such as the general prohibition of export restrictions between MS (Article 35 TFEU)[33].

Only Article 168(4) TFEU, which entered into force with the Treaty of Lisbon in 2009, gives the EU original competencies for all kinds of actions as regards product safety. Letter (c) explicitly addresses measures to set high quality and safety standards for medicinal products and medical devices, which include, for example, the marketing authorisation of medicinal products. These EU competencies are shared with the MS, meaning that if and insofar as the EU has acted, its action, unlike the other activities in the health field mentioned above, precludes action by the MS[31,32,33]. It is for this reason that Regulation (EC) No 726/2004 establishing a framework for an EU procedure for the authorisation and supervision of certain medicinal products has a blocking effect on MS authorising these products. Nonetheless, Article 168(7) TFEU postulating the EU's general subsidiarity in health also takes effect in relation to this shared competency[31,32].

With the Draft Directive and the Draft Regulation, the EC, in line with the legal basis of current EU pharmaceutical law, rightfully invokes its legislative competencies pursuant to Articles 168(4)(c) and 114(1) TFEU[23,24].

However, there is at least one individual measure within the Draft Framework that

exceeds EU competency, namely Article 81(3) Draft Directive providing the European Medicines Agency (EMA) with the task of determining an evidence-based comparator for clinical trials in the frame of regulatory data protection periods. According to Recitals 15, 28, Articles 2(9), 8(6)(c), 16(1) Regulation (EU) 2021/2282 (HTA Regulation, a 'Member State Coordination Group on Health Technology Assessment' is responsible for setting the parameters of the comparator. Therefore, the competency lies with the MS' national HTA agencies, not the EMA (cf. IQWiG[35]).

2. TYPES OF LEGISLATIVE ACTS IN PHARMACEUTICAL LAW

There are two types of EU legislative acts, Directive and Regulation. The latter is a legal act that directly binds all MS, whereas the former stipulates goals to be achieved by the MS by means of their own choosing (cf. Article 288 TFEU)[36]. When drafting a new law, the EC, as the generally competent body for any EU legislative initiative (cf. Article 17(2) TEU), has discretion regarding the choice of form if TEU or TFEU do not require a Regulation such as that regarding the structuring of the internal organisation of EU institutions (cf. Article 298(2) TFEU). In doing so, the EC has to take into account certain legal requirements (the principle of proportionality, Articles 296 TFEU, 5(4) TEU, and the principle of subsidiarity in the case of non-exclusive competencies, Article 5(3) TEU) and thoroughly justify its choice[36]. Looking back to the period between the 1980s and the early 2000s, Directives used to be the main form of EU legislation, both generally and specifically in health policy, and they were used in subject areas that already had a differentiated national framework allowing for a coherent, predictable legal structure[37,38]. Meanwhile, Regulations were used for areas of law that were not yet fully evolved nationally[37,38].

The foundational legislative act on medicinal products, building on pre-existing national (and EU) laws, was constructed as Directive 2001/83/EC, sometimes also referred to as the Community Code. This is supported in terms of competency, as EU subsidiarity in the health sector means that the complex area of medicinal products tends to be dealt with more appropriately by Directives than by Regulations[38]. However, in the case of the Orphan Regulation, which came into effect in 2000, there had not existed, up to that point, comprehensive laws on promoting medicines for rare diseases that justified using a Regulation[38]. According to 298(2) TFEU, the establishment of the EMA as the then new and competent authority for the new centralised procedure for marketing authorisation of specific medicines was done by Regulation (EC) No 726/2004. Since paediatric drugs were intended not only to be governed by the Paediatric Committee at the EMA but also to partly fall under the centralised procedure, they were regulated within the Paediatric Regulation. It was a similar situation for advanced therapy medicinal products (cf. Regulation (EC) No 1394/2007, ATMP Regulation). It seems that with the accelerating rise of novel technologies, the EC has been elevating the handling of these technologies, as well as that of medicines for small patient groups, to the EU level by means of Regulations from the outset. Irrespective of this, there appears to be another recent trend within the broader framework for medicinal products of turning former Directives into Regulations, as was the case with veterinary

medicinal products, medical devices, and clinical trials, increasing complexity and thereby legal uncertainty[38].

After the EC had announced, as part of the Pharmaceutical Strategy, that the 'the final form of the legislative instrument(s) is yet to be decided[39]', some spoke out against the Directive 2001/83/EC being turned into a Regulation[38] and voiced their general concerns about damaging the existing legal structure. With the Draft Framework out now it is clear that Directive 2001/83/EC is supposed to maintain legal form, despite being comprehensively amended, revised, and altogether repealed. The Draft Regulation, however, will encompass most of the new measures within the General Legislation that relates to cross-border health threats and their coordination at EU level. Although this creates a rather novel legal structure, it makes sense against the backdrop that previously there were apparently no comprehensive and effective national legal structures across the MS that dealt with cross-border health threats. Concerning specific pharmaceutical legislation, the Orphan Regulation, by contrast, will be merged into the Draft Regulation applicable to all medicinal products. Still, it seems reasonable as regards the merger's intended simplification and increased coherence[23,24]. However, the provisions of the Paediatric Regulation – although they will, henceforth, also fall under the legislation applicable to all medicinal products, aiming at simplification and coherence – will be divided up between the General Regulation and the General Directive. The EC, here, gives no justification as to why it deems this division appropriate. Overall, though, the two choices of the Draft Directive, continuing, more or less, the old Directive 2001/83/EC, as well as of the extended Draft Regulation, seem to comply with the formal requirements outlined above.

IV. Policy Impacts on the Pharmaceutical Reform

Looking at the pharmaceutical reform, one can identify three broad categories of policy influences: (a) a huge number of individual specific issues, mostly aimed at compensating for market failures, that had been raised years before the health crisis; (b) direct reactions to and experiences from the COVID-19 pandemic; and (c) direct and indirect reactions to geopolitical disruptions.

1. MARKET FAILURES: THE EXAMPLE OF THE FIGHT AGAINST ANTIMICROBIAL RESISTANCE (AMR)

In July 2022, the EC, together with the MS, declared AMR as one of three top priority health threats in the EU[40]. Accordingly, AMR also play a central role in the whole pharmaceutical reform.

As a starting point, the marketing authorisation of antimicrobials is transferred to the EU level in the interest of all patients within the MS (Recitals 9, 10 Draft Regulation). For 'priority antimicrobials', central authorisation is mandatory (Article 3(1) in connection with Article 40(3) and ANNEX I No 6 Draft Regulation). Article 40(3) Draft Regulation defines these as priority antimicrobials if 'preclinical and clinical data underpin a significant clinical benefit […] and it has at least one of the following characteristics: (a) it represents a new class of antimicrobials; (b) its mechanism of action is distinctly different from that of any authorised antimicrobial in

the Union; (c) it contains an active substance not previously authorised in a medicinal product in the Union that addresses a multi-resistant organism and serious or life threatening infection'. Antimicrobials that do not meet these requirements are therefore eligible (Article 3(2) Draft Regulation), but do not require centralised authorisation. Subsequently, the Draft Regulation incentivises R&D of priority antimicrobials. Articles 40 ff. Draft Regulation introduce a transferable data exclusivity voucher to a priority antimicrobial, granting an additional year of data protection to the developer. Article 60 Draft Regulation additionally provides that the 'PRIME' scheme – in which the EMA offers enhanced pre-authorisation scientific and regulatory support for priority medicinal products (PRIME) to their developers – be cast into legal form and then be extended to 'priority antibiotics' as defined in Article 40(3) Draft Regulation.

However, fostering the development of novel antimicrobials does not suffice if the usage is not regulated at the same time. It is for this reason that, at least for antimicrobials that are not authorised centrally, Article 17(1)(a) Draft Directive requires the national application for marketing authorisation to also contain an antimicrobial stewardship plan outlining, inter alia, information about risk mitigation measures to limit AMR development (cf. ANNEX I(21)a)(I) Draft Directive). Article 51(2) Draft Directive, moreover, suggests that MS install additional rules as regards the prescription of antimicrobials. Article 69 Draft Directive sets up special information requirements aimed at health care professionals (including through medical sales representatives) and patients (via the package leaflet and an 'awareness card').

As regards policy influences, the fight against AMR is one of those specific issues long known to the EU that often refer to compensating for market failure. AMR is a classic example of negative physical external effects and, hence, a case of market failure (c.f. Breyer et al,[41] to name but one). It is for this reason that the EC identified innovative antimicrobials to require not only public support regarding R&D and commercialisation but also restrictions concerning the products' use. Other measures related to market failure would be, inter alia, those of *unmet medical need* (UMN) (cf. Chapter VII Draft Directive, Articles 70,71 Draft Regulation), orphan drugs (cf. Chapter VI Draft Regulation), and market exclusivity periods (cf. Article 71 Draft Regulation). The EU had started or has continued working on them before the health crisis (cf. *A European One Health Action Plan against AMR* of 2017)[42] and, of course, the Orphan Regulation, first introduced in 1999. Regarding AMR specifically, COVID-19 thus plays only a minor role in that it highlighted, once more, the importance of infection prevention and control, especially in the hospital setting (cf. 15 Recital Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach (Council Recommendation)[43]. However, antibiotics necessary for the fight against AMR also have a link to geopolitics. The industry currently cannot cover their productions costs in the EU, which is why, for API for antibiotics, the EU heavily depends on production in China and India, causing increasing concern (cf. Hosseini and Baur[44]). It is against this background that the EU seeks to install open strategic autonomy in, inter alia, antibiotics. On EU autonomy regarding AMR, see Bayerlein[45].

2. COVID-19: ENHANCING EU PREPAREDNESS, PREVENTION, AND DEFENCE AGAINST CROSS-BORDER HEALTH CRISES

In view of the initial inactivity and then the somewhat chaotic unilateral actions at MS level at the beginning of the COVID-19 pandemic, a more coordinated, more comprehensive, and faster action at EU level against cross-border health threats really is a common thread throughout the various initiatives and legislative proposals of the reform.

As mentioned above, Article 60 Draft Regulation provides that the EMA offers enhanced scientific and regulatory support for PRIME to their developers. According to Article 60(2) Draft Regulation, those PRIME also include medicinal products 'preventing, diagnosing or treating a disease resulting from serious cross border threats to health'. However, the EMA will only help 'at the request of the Commission and after consulting the EMA Emergency Task Force […] if access to such products is considered necessary to ensure high level of Union preparedness and response to health threats'. All therapeutics within the framework of Article 60 Draft Regulation will profit from an accelerated assessment procedure reducing the time limit to 150 days (Article 6(7) Sentence 2 Draft Regulation). Generally, the PRIME scheme has already been in place since 2016, i.e. it is not a result of the pandemic. However, in the past, it was built on various legal tools within the General Legislation and rather targeted orphan drugs and ATMP (cf. EMA[46]). With the Draft Regulation, the PRIME scheme not only is transferred into one single norm, providing for more legal certainty for the developers, but also includes specific medicines for cross-border health threats. This shows that Article 60(2) Draft Regulation was conceived with specific regard to the experiences gained during the COVID-19 crisis regarding the need for access to a vaccine or therapeutic against such a threat as early as possible (cf. Explanatory Memorandum, Recital 66 Draft Regulation). It draws on experiences from the phased review of data for COVID-19 vaccines and therapeutics (cf. Explanatory Memorandum, Recitals 56 Draft Regulation). However, the PRIME advantages are still focussed mainly on UMN, as demonstrated by the fact that UMN is mentioned at the beginning of the norm (cf. Article 60(1) Draft Regulation), before the cross-border health threats in the norm's second section.

In addition to that pre-authorisation help, temporary emergency marketing authorisation (TEMA) will be granted 'for medicinal products intended for the treatment, prevention or medical diagnosis of a serious or life-threatening disease or condition which are directly related to the public health emergency' (Article 30 ff. Draft Regulation). Article 6(2) Draft Regulation additionally provides a phased review procedure for 'medicinal products that are likely to offer an exceptional therapeutic advancement in the diagnosis, prevention or treatment of a life-threatening, seriously debilitating or serious and chronic condition in the Union'. During the health crisis, the EC approved vaccines against COVID-19, such as *Comirnaty* and *Spikevax*, under the framework of conditional marketing authorisation[47] (cf. Article 14a Regulation (EC) 726/2004, cf. also Article 19 Draft Regulation), together with a so-called rolling review[48]. Although this was done rather

quickly, other regulatory bodies in the UK and the USA were still able to grant approval faster (cf. Cowlishaw and Handy[49]). Thus, the new TEMA procedure is meant to speed up the process even more in the case of a health crisis (cf. Cowlishaw and Handy[49]). All in all, TEMA truly is a product of the recent pandemic. The rolling review procedure, however, existed before the pandemic but had not been anchored in law.

There is, furthermore, a whole new legislative act that has already been enacted: *Regulation (EU) 2022/2371 on serious cross-border threats to health* (Cross-border Threats to Health Regulation) of November 2022. Although there had been some provisions on cross-border health threats, this Regulation is explicitly built on lessons learnt from COVID-19, given that the old EU legal framework was not effective (cf. Recitals 1,2 Cross-border Threats to Health Regulation). A major part of this new Regulation, therefore, is enhancing EU-level action for coordination and cooperation (cf. Recitals 15, which also points to experiences gained during the pandemic and emphasises the need for increased coordination at EU level, enabling, inter alia, joint procurement).

In addition, there is the establishment of the *Health Emergency Preparedness and Response Authority* (HERA) by EC Decision of 16.9.2021 (Decision)[50]. According to Article 2(1) Decision, this EC service has a mission to improve preparedness and response to serious cross-border threats through medical countermeasures, including vaccines and antibiotics (cf. Communication on Introducing HERA[51]).To fulfil this mission, HERA was given multifold and wide-ranging tasks related to medical countermeasures: (a) assessing health threats and intelligence gathering; (b) promoting advanced R&D; (c) addressing market challenges and boosting the Union's open strategic autonomy; (d) swift procurement and distribution; (e) increasing stockpiling capacity; and (f) strengthening knowledge and skills in preparedness and response (Article 2(2) Decision).

It is questionable whether the need for better health crisis preparedness and response, especially by way of establishing TEMA and HERA and amending the Cross-border Threats to Health Regulation, would have been recognised at that point in time and executed as quickly without the hard lessons from the pandemic. In that very regard, COVID-19 therefore had a significant policy influence.

3. GEOPOLITICAL DISRUPTIONS: ENSURING EU AUTONOMY AND PUBLIC SECURITY

Although it has not been discussed as vociferously as COVID-19 in the policy and public spheres, another dramatic development has taken place that has a major influence on the pharmaceutical reform: intensifying geopolitical disruptions. The effects of these can be seen in two respects.

Firstly, Article 116 Draft Regulation obliges the authorisation holder to notify future market withdrawals and supply shortages to the MS and, in the case of a product with central authorisation, to the EMA. In addition, the authorisation holder must provide a plan to prevent shortages (Article 117 Draft Regulation). Moreover, within the *Regulation (EU) 2022/123 on a reinforced role for the European Medicines Agency in crisis preparedness and management for medicinal products and medical devices* (Reinforced

EMA Regulation) of January 2022, the newly established *Medicine Shortages Steering Group* within the EMA (Article 3(1) Reinforced EMA Regulation) addresses drug shortages during a 'public health emergency' or 'major event' (cf. Article 2(a),(b) Reinforced EMA Regulation) by, inter alia, providing recommendations to the EC and MS 'on any appropriate action that it believes needs to be taken at Union level […]' (Article 5(1) Reinforced EMA Regulation), and by establishing lists for critical medicines necessary for emergency care, surgery, and intensive care (cf. Article 6(1),(2),(3) Reinforced EMA Regulation). Furthermore, HERA, which has already been mentioned, will enhance pharmaceutical autonomy (Article 2(2) Decision) by, inter alia, systematically mapping supply chains, manufacturing capacities, and production sites as well as setting up industrial partnerships[51].

All these measures originate from the fact that drug shortages have become a systemic problem within the EU, increasing twenty-fold in the time between 2000 and 2018[52]. Although they have been identified as being multicausal, a main driver is the concentration of value chains with only a very few producers worldwide (cf. EC[53], to name but one). A large proportion of these producers, especially those of generics and API, are based in China; for example, in the German market for antibiotics, 80% of the necessary preliminary products are being produced there (cf. Hosseini and Baur[44]; Joachimsen[54]). Consequently, EU pharmaceutical supply depends heavily on Chinese firms[14]. Aside from the fact that disregarding the strategy of second sourcing for an essential product – which seems to be difficult for specific API[14] – should be a matter of general concern, the crux with China lies in its striving for hegemony, giving rise to serious political conflicts with the long dominant USA and its partners, such as the EU. Addressing the area of economy, some call these quarrels 'economic warfare' (for a legal analysis of economic warfare, see Hagemeyer-Witzleb[55]). Be that as it may, these antagonisms unsettle businesses, dragging down global markets, and contribute to profound disruptions of pharmaceutical supply chains (on the general worries of businesses regarding geopolitical tensions, see PwC[56]). These then cause shortages in the EU. In addition to these reactions of the private sector, states enhance the problem by imposing protectionist measures such as export restrictions, also within the EU Single Market, to avoid domestic shortages themselves[6]. Also, pharmaceutical 'big players' such as China might, in the future, use export stops as a means to enforce policy claims in other areas (cf. Hosseini and Baur[44]). Therefore, the EU tries to reduce its dependencies and gain pharmaceutical autonomy[14].

Yet this game of 'medical geopolitics[3]', aside from the advancement of R&D (in which the EU performed rather well during the COVID-19 crisis), eventually only functions for the player that owns the raw materials necessary for pharmaceutical production. It is for this reason that the draft *Regulation establishing a framework for ensuring a secure and sustainable supply of critical raw materials* (Draft CRMs Regulation)[57], going back to the Industrial Strategy, inter alia, aims to secure for the EU availability of specific materials necessary for the production of medicines.

Thus, the new measures relating to EU independence do not stem from the COVID-19 crisis originally. Nonetheless, COVID-19 had a decisive influence in that the pandemic, as if magnified through a burning glass, demonstrated the relevance of pharmaceutical autonomy in times of emergency, including defending EU pharmaceutical infrastructure. An example of the latter is that at the start of the pandemic, the EC was alarmed at foreign (government-controlled) companies gaining control over Europe's critical health infrastructure, including the pharmaceutical and biotech sector, so it urged MS' governments to increase their control of foreign direct investment according to Regulation (EU) No 2019/452[58] (cf. Plank[59] on foreign direct investment screening for medicinal products). The EC even called on MS to invest in their domestic firms themselves to prevent a foreign takeover (cf. Espinoza[60]), as Germany did in the case of *CureVac*. In contrast, in an example of dependency, the USA later restricted exports of lipids required for production of mRNA vaccines against SARS-CoV-2 (cf. PTI[61]).

The second aspect of geopolitical disruptions relates to issues other than pharmaceutical autonomy. Under the framework of *rescEU,* the EU's scheme for civil protection, and in cooperation with HERA, the EU arranged for tablets of potassium iodide against radiation damages to be stockpiled, only a few weeks after the war in Ukraine started[62]. Thereupon, HERA and the MS declared chemical, biological, radiological, and nuclear (CBRN) threats to health, of accidental or deliberate origin, alongside AMR and pathogens with high pandemic potential, as top priority health threats to EU citizens[40]. Such CBRN threats include medium-range atomic missiles, attacks on power plants, and biological agents. At the beginning of 2023, HERA instigated the accumulation of further medical countermeasures against CBRN, including antibiotics and vaccines[63].

The war in Ukraine is an obvious driver for these sudden undertakings[63]. Although the prospect of some form of global armed conflict should have come to the EU's notice beforehand (cf. Münkler[64]), this 'war next door' – a most extreme case of political disruption, certainly for the EU – accelerated the process of understanding that medicines supply is also relevant for human-made threats to public security (cf. also Badrot[65]: 'We need to look at medication on an equivalent level of strategic importance as weapons').

V. Conclusion and Forecast on the Pharmaceutical Reform's Effectiveness

COVID-19 has unsettled citizens and politics in the EU, as it did all over the world. The pandemic certainly made the EC realise the need for the rapid introduction and implementation of several strategic precautions for and acute actions against health crises at EU level, both inwardly and outwardly orientated, that had not previously existed to that extent. However, the majority of the new measures are not rooted in the outbreak, as they address problems whose existence had been known (long) before, such as failures of the market for medicinal products against AMR, and geopolitical conflicts disrupting supply chains for essential medicines and provoking new security measures

regarding pharmaceutical countermeasures. It is for these reasons that, all things considered, COVID-19 was a mere accelerator, a catalyst for pharmaceutical reform, not the trigger; Laforce[66] agrees with respect to value chains.

As for effectiveness regarding the reform's overarching aim of better medicines care in the EU, there are various concerns about a large number of the new measures (cf., for example, Van de Wiele et al[67]).

Some of these relate to the trade-offs associated with the faster authorisation of medicines. According to some, the PRIME procedure of Article 60 Draft Regulation should be cut out completely as the project has not fulfilled the expectations placed on it, since those pharmaceuticals authorised under PRIME often lack a reliable data basis and are associated with considerable uncertainties[68]. Moreover, it was unclear overall whether the independence of the authorisation decision may be compromised due to close personal contacts between the authority and the company[68]. Concerning the phased review in Article 6(2) Draft Regulation, the privileged treatment should be limited to crisis-relevant medicines in the event of a health emergency at EU level according to Article 23 Cross-Border Threats to Health Regulation, since such a procedure was resource-intensive and hindered later HTA procedures[68]. Of course, fast access through rapid authorisation of promising drug innovations is of the utmost importance, especially in the event of a crisis. However, given that the accelerated procedures actually do result in a considerable lack of data that is relevant not only to the effectiveness but also, in particular, to the security and efficacy of the medicinal products, this criticism can be accepted. It is for this reason that, should the norms come into force as proposed, they would not contribute to better medicines care in the EU.

Regarding the measures on drug shortages and generally pharmaceutical autonomy, some point out that although strategic independence is very important, it is crucial not to isolate too much from global supply chains. This is because studies have shown that in addition to vulnerabilities, these also bring many supply advantages (cf. OECD[69]), especially when one considers that a relocation of production back to the EU is only possible if the price pressure allows it, i.e. the MS' health systems are prepared to pay more for the products (cf. Hosseini and Baur[44]; on EU autonomy regarding AMR, see Bayerlein[45]). This is also a valid point.

Lastly, it is a general problem that many measures that are a good idea in principle, such as the establishment of HERA, again only work in coordination and cooperation with MS. Although this can have positive synergetic effects, for example regarding strategic precautions in normal times, in the case of an acute (health) crisis, MS might still enact the very same uniliteral protectionist measures as they did during the COVID-19 crisis. This was, of course, extremely short-sighted, as pandemic control in particular cannot be thought of solely at national level in order to be truly effective in the face of our globalised world and globally operating pharmaceutical corporations. It is for this reason that an amendment of EU competencies in health crises might be the cure for better medicines care, at least in times of crisis (cf. Calliess's proposal[70], with

which Plank agrees)[8]. However, it would also represent a legal policy signal for solidarity in the event of future emergencies of all kinds.

Summing up, COVID-19, geopolitical disruptions and continuing market failures have shown EU legislators and the public that ensuring medicines supply is a question not only of individual welfare state regimes, but also – especially in extreme situations – of inner European solidarity and coherence, as well as of European autonomy and public security. The pharmaceutical reform, in its current form, is, in principle, a valuable approach for enhanced medicines care in Europe, but is in need of improvement.

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