

COVID-19 “Round 2” – Findings & way forward

Summary

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KEARNEY



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Objectives of this document



Briefly introduce scenario planning for a potential second COVID-19 wave



Compare supply vs. demand for the next months under various scenarios



Present results from API survey

- 1. Executive Summary**
- 2. Demand**
- 3. Supply vs. demand**
- 4. API Survey**

1

We have developed three scenarios for a second COVID-19 wave indicating that...

Scenario planning suggests that

- A best case, base case and worst case could occur
- Governments need to consider additional factors (e.g., tourism) in their planning

2

... EU/ EEA shortage during the summer months is unlikely, but...

The available data indicates that

- Stock levels will drop significantly from their peaks in May
- But a shortage of any class of molecules during June, July and August is unlikely

3

...preliminary analyses suggest a second COVID-19 wave may hit member states hard!

Preliminary analyses suggest that

- Shortages in Oct/ Nov are a real possibility, especially for NMBs
- The industry needs a clear demand signal from member states to prepare adequately

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Demand forecasting model

Legal disclaimer

Estimations are based on the following:

- This calculator is not an epidemiology model. The inputs, such as projected deaths, no. of days on ventilation, choice of ventilation medicines are based on the available information as well as expert and academic opinion.
- This calculator is not a prediction of the expected effects of COVID-19.
- This model was created solely to estimate the potential demand for critical medicines due to Covid-19.
- The parameters in the scenario are estimates intended to support public health preparedness and planning.
- These inputs and corresponding outputs may not reflect the reality of what users will ultimately see.
- The forecasting does not reflect the impact of any behavioral changes, social distancing, or other interventions.
- Users are discouraged from drawing strong conclusions about deaths or new cases on the basis of these estimates.
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A model was developed to estimate the demand of critical medicines for a potential second COVID-19 wave

Demand forecasting model

- Initially developed by **Medicines for Europe** and **Accord Healthcare** for the **first COVID-19 wave**
- Enhanced with additional parameters by **Kearney** for a potential **second COVID-19 wave**

Approach

- **Favoring overestimation of cases** due to the fact that the risk of underestimating is higher than the risk of overestimating
- **Not reflecting the impact** of any behavioral changes, social distancing, or other interventions which could influence case numbers
- **Not addressing** the impact of **tourism** potentially occurring in late summer/ early autumn
- Using **number of reported deaths per country** as base for estimation
- Using **three different parameters** to plan for **future demand scenarios** (# deaths, MV usage, treatment duration)

Data sources

- **Actual data** of number of daily deaths as of **May 21st 2020**
- Worldometer Coronavirus reports
- WHO Situation Reports
- Expert opinions
- Secondary research, e.g.
 - Robert-Koch-Institute, Germany
 - International Long-Term Care Policy Network (<https://ltccovid.org/>)
 - ICNARC – Intensive Care National Audit & Research Centre
 - Various scientific articles (e.g., Grasselli et al., JAMA; Bhatraju et al., NEJM)

Key assumptions

- **Herd immunity will not be achieved** by any country during first COVID-19 wave
- **Individual country responses** to a second COVID-19 wave will be **identical to responses to the first wave**
- The development of the second COVID-19 wave will be **similar to the first wave**
- Only COVID-19 related deaths occurring in ICUs will **cause demand in critical medicines**
- Number of daily deaths will decrease **around 28-days post-lockdown**

Three different scenarios – best, base and worst case – will indicate medicines demand for a potential second COVID-19 wave

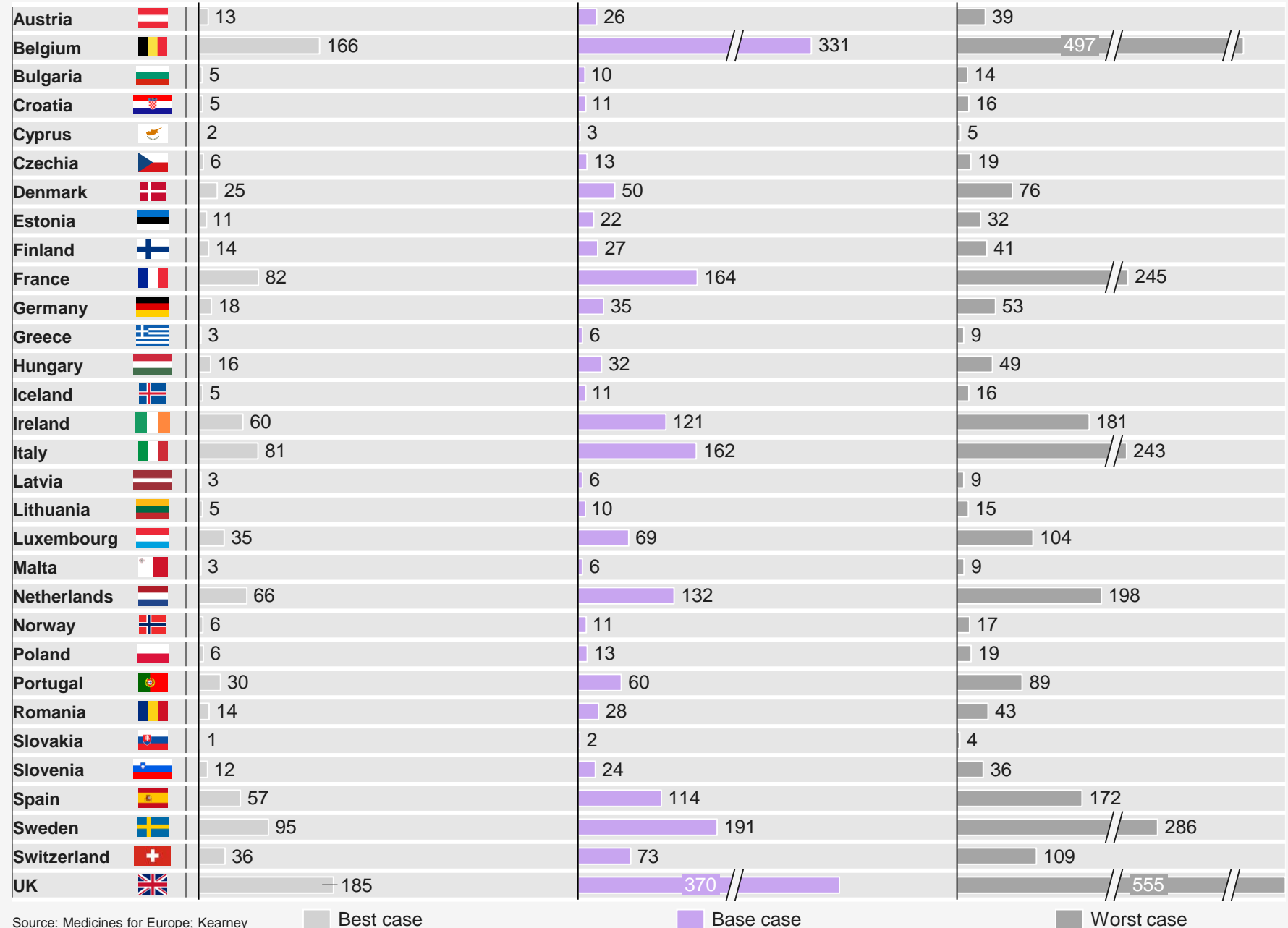
Selected scenario overview for a second COVID-19 wave
Key characteristics

		Best Case	Base Case	Worst Case
Scenario illustration for molecule demand				
Model parameters	# of new deaths vs. first wave	- 50%	Same	+ 50%
	% patients on MV	50%	50%	100%
	Treatment duration	Likely		
Total # new ICU patients (October 1 st – November 30 th 2020)		33'153	66'306	99'459

Expected number of new COVID-19 ICU patients per million inhabitants (01.10.-30.11.2020)

Even countries that were less affected in a first COVID-19 wave need to prepare for a potential second wave

Illustrative – based on data from 21.05.2020



Source: Medicines for Europe; Kearney

Best case

Base case

Worst case

Governments should consider a “tourism factor” when planning for a second COVID-19 wave

Illustration

Example:
Tourism in Greece during summer months



“Tourism factor”: Explanation

- **Situation:**
 - Popular holiday destinations are likely to re-open **for tourists during summer months**
 - This is currently **not** figured into the second wave projection
- **Impact:**
 - Population within holiday destination will **grow by factor X** during summer months
 - Number of cases **will be larger** than assumed in the model (due to increased number of visitors) for both host and destination country
- **Example:**
 - Greece had **28mn visitors in 2018**, which is almost **3x its population**
 - Tourism numbers for **2020** are likely to be significantly **lower**
 - Assuming around **10mn** visitors in the summer of 2020 would **double** Greece’s population susceptible to a **COVID-19 infection**
- **Recommendations:**
 - Governments should include a “**tourism factor**” in planning for second COVID-19 wave
 - This factor needs to consider **tourists within the country as well as returning citizens**

Illustrative

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Demand was compared against supply under twelve different scenarios

Reported supply vs. extrapolated supply

- **Two scenarios:**
 - Only actual supply reported back by MAH
 - Actual supply reported back by MAH, extrapolated to full market size (based on 2019 figures)



Second wave scenario planning

- **Three scenarios:**
 - Best case: lowest absolute demand
 - Base case: likely demand
 - Worst case: highest likely demand



Available supply for COVID-19 patients

- **Two scenarios:**
 - Avg. 50 % of supply available for COVID-19
 - Avg. 75 % of supply available for COVID-19



Summary:

The summer months should be used to restock in preparation for a potential second COVID-19 wave in autumn

1

The industry **scaled up supplies** massively during April/ May 2020 – however, this may **not be maintained** over the summer months!

2

The industry analysis, based on experts' hypotheses, suggests **shortages** across Europe are **less likely** during the **summer months.**

3

However, in the event of a **second wave in autumn**, there are **supply risks for Europe**, most poignantly in neuromuscular blockers.

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Our survey of participating MAH suggests that API challenges currently do not seem to pose a major risk for the industry

We asked MAH the following question:
“Do you experience notable API challenges that pose a significant threat to manufacturing in **terms of quantity, quality or time of delivery?**”

Illustrative;
data based on 08.06.2020

Results

- **Only few manufacturers** report at least one notable API challenge
- These are restricted to **neuromuscular blockers and sedatives**
- **Common themes** are short-term supplier capacity, committed volumes and own use of API by supplier

Implications

- Generally, API supply does **not seem to be a major risk factor**
- However, **capacity constraints** may cause **manufacturing bottlenecks**
- This conclusion needs to be corroborated from the **perspective of non-EU manufacturers**





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Image by Ch. Germino

1. Appendix

Key model parameters were defined using various sources, including from governmental agencies

Rationale and sources for key demand model parameters
Non-exhaustive, high-level

Model parameter	Rationale	Key sources
Number of COVID-19 related deaths	<ul style="list-style-type: none"> – The number of deaths is a more reliable indicator than the number of cases 	<ul style="list-style-type: none"> – Worldometer
% of COVID-19 related deaths in hospital	<ul style="list-style-type: none"> – Only patients who are admitted to ICU consume ICU medicines – therefore, patients who died outside of hospitals should not be included 	<ul style="list-style-type: none"> – Robert-Koch-Institute, Germany – International Long-Term Care Policy Network – ICNARC – Intensive Care National Audit & Research Centre
MV rates for COVID-19 patients	<ul style="list-style-type: none"> – There is a mounting trend towards putting fewer patients with COVID-19 on MV as an adverse impact on treatment outcome as been observed in some studies – A 50% MV rate was used as a “lower-bound” estimate based on available studies – All patients not on MV are assumed to be on non-invasive ventilation 	<ul style="list-style-type: none"> – Grasselli et al., JAMA, 2020 – Bhatraju et al., NEJM, 2020 – Yang et al., Lancet Resp Med, 2020 – Wang et al., Annals of Intensive Care, 2020 – Gattinoni et al., AJRCCM, 2020 – Clinical experts
ICU treatment	<ul style="list-style-type: none"> – Dosage and duration of ICU treatment differs by molecule class – Country-specific differences need to be “averaged out” 	<ul style="list-style-type: none"> – Clinical experts from various countries – Various scientific articles (e.g., Grasselli et al., JAMA, 2020)