Brief Report

Are we on the Right Way after 200 Days of COVID-19 in Morocco?

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Abstract

Since March 2nd, 2020, date of the first SARS-COV-2 detected case in Morocco; multiples activities were adopted as COVID-19 control strategies.

If the first period of COVID-19 noticed a few numbers of cases and deaths, the second half from July until today is marked with an exponential increase of the number of cases and a spread in almost all provinces with more intensive care needs and more deaths.

The fatality rate of this disease is mainly compared with the highest developed countries in Europe and America. Instead of comparing the strategy and the deaths, with similar Arabic, African or Asiatic Middle-Income countries like Tunisia, Jordan, Cote d'Ivoire, Uzbekistan; that socio-demographic situation, behaviours, population density, and individual vulnerabilities create less confounding factors to make fair comparisons.

Thus, this report has the aim to present how the COVID-19 pandemic was dealt in Morocco during this 200 days, by highlighting some discrepancies with corrective advice to get better future control results against COVID-19 and afford a possible comparison with other countries.

The policy analysis approach was followed as a method to defines the pitfalls themes and to compare with the updated available international information about was it work and what is not needed to do.

In conclusion, molecular biology represented by q-RT-PCR is the immediate action to do to enhance the diagnostic and the overall control strategy by knowing how to interpret its results following the time progress of cycle quantification values.

Keywords: COVID-19; SARS-CoV-2; RT-PCR; control strategy; Morocco

Background

The new emerged infectious disease, SARS-CoV-2 has the worldwide interest due to the deathly issue for some affected persons without any effective vaccine or treatment to stop the spread, leading to many questions around this virus that are not yet answered.

Morocco, as a North African country, faced this disease from last March that brings massive economic uncertainties in different strategic sectors. On September 18th, 2020, after exactly 200 days from the first COVID-19 notification in Morocco,18819 active cases were under treatment from 97264 total cases detected after doing more than two million tests (Real-time PCR or serological IgG/IgM rapid tests). Severe and critical cases created more needs of intensive care (264 severe and 41 critical cases were hospitalized in that day). The mean per-day' deaths during the last month were 33[25-43], and the overall deaths were 1755.

To address the shortage of molecular tests during the past month and the failed preventive measures to control this disease, the Ministry of Health (MoH) updated the control strategy on September 2nd. The adopted hypotheses are: Asymptomatic cases are not contagious, COVID-19 can lead to good herd immunity, The overall COVID-19 deaths are under control with a low rate compared to the developed countries, and an effective vaccine could be available soon. **Figure1** include the conceptualisation of this control strategy. The latter raises some controversial points.

Method

A policy analysis approach was made following the overall recommendation of *Patton&al* [1].

The authors, of the referenced basic methods of policy analysis book, resumed the need for quick policy decisions, to policy analysts and planners to help to improve the quality of decisions by providing quick, accurate and timely analyses[1].

For this work, the point start was the creation of a graphic (Figure1) to resume and communicate all the information available on the analysed Ministerial decision organising the COVID-19 control strategy in Morocco. Then, the word cloud was used to extract all sounding words (Figure 2). For each group of words selected, memos were linked to them. Each memo was appropriate to add the thematic meaning from the words, the comment of the problematic situation and the problematic situation. For each problem and based on the review of the literature, other quick decisions were proposed from benchmarkable decisions or identified

alternative comparisons with the real world or with ideals. All proposed new or known decisions should respect the technical feasibility and political viability. However, the cost of each decision, cannot be prioritised without a cost-effectiveness analysis, including the primary three outcomes on politic. Namely, 1) the human lives' lost with DALY or QALY if long term invalidities due to this disease will appear; 2) the direct and indirect costs of the selected technical decisions, 3) and the acceptability of the proposed decisions by guarantying the maximum level of health professionals' safety and patients' diagnostic and treatment qualities.

The last stage of this method is the confrontation of the full initial version of the manuscript presenting the results and their analysis with the health policymaker's community to document the decisions change adopted during the fifteen coming days, with taking into account the "No action (Status Quo)" as a practical decision.

Results and discussion

Firstly, COVID-19 case management is now mainly based on the **clinical assessment of probable cases**, **with rare RT-PCR confirmation**. Stopping the systematic use of the RT-PCR is justified by wasting time to get the results, that impact starting the treatment, increase the risk of complications, increase the death probability, and prolong the spread of the virus. In contrast, with the agreed recommendation considering the molecular diagnostic, the best useful tool for COVID-19 case management[2]. Additionally, COVID-19 PCR trademarks used for some confirmations, showed only qualitative binary results, leading to a lack of accuracy by not interpreting the cycle quantification values[3].

Secondly, MoH decision defines clinically asymptomatic cases as the ones without any clinical symptoms, in contact with another symptomatic case, or living in an epidemiological cluster, or being a health-care worker in COVID-19 environment. Thereby, for almost any symptom like the COVID-19 ones, many healthy persons and the front-line health-care workers could be considered excessively and repeatedly as asymptomatic cases increasing false-positive errors.

Thirdly, no diagnostic test confirms the presence of COVID-19 in the suspected asymptomatic cases and based on the clinical definition, seven days of treatment without noticing any COVID-19 symptoms is synonym to a recovered declaration. Moreover, the declaration of "heling" remains doubtful, due to not respecting the use of qRT-PCR to confirm the case negativity by

the viral load clearance. Thus, the false 'post-treatment' negative cases will be more frequent and could sustain the spread.

Fourthly, the document, explains the need to start the first-line treatment quickly after doing an electrocardiogram and pre-therapeutic exams to check the treatment contraindications, creating an additional delay to start the treatment quickly, in disagreement with the noticed awareness not to waste time waiting for PCR results. Furthermore, the MoH believes in the effectiveness of Chloroquine or hydroxychloroquine as first-line treatment with or not an association to azithromycin and extended its use for in-houses and in-hospital probable's cases.

Fifthly, any suspected COVID-19 case with one or more risk factors (Older people, diabetes, High blood pressure, morbid obesity…) is systematically considered eligible for hospitalisation without knowing the viral load state. Then, such false-positive patients could be hospitalized near other patients developing moderate symptoms marked principally with getting pneumonia or other real positive COVID-19 patients. Unfortunately, this newly adopted strategy will contribute to transform many false-positive and vulnerable people to positive COVID-19 cases and increase more intra-hospital deathly issues. As known, due to the absence of negative-pressure conditions, the in-rooms hospital will spread COVID-19 infectivity between the shared rooms patients without discussion of the risk of nosocomial transmission of coronavirus[4,5].

Sixthly, As recommended by this new strategy, the asymptomatic cases, or symptomatic cases with COVID-19 signs except for pneumonia, should isolate themselves in their houses. While international evidence, notice that the maximum risk of contamination happens within the family members at home and is proportionated to the viral load level[6].

Seventhly, the MoH use instead of the PCR tests, the serological IgG/IgM COVID tests to follow the prevalence of the disease into each town endemic area, with the hypothesis that the most positive symptomatic cases will have a positive test. Then many false-negative COVID-19 patients were not treated after the negativity of this test that is known getting positivity after at least ten to fourteen days of the infectivity[7].

Finally, not doing systematic molecular PCR, create varieties of patients' pathways advised to do confirmation in authorised private laboratories located in just small number of towns. Alternatively, to go to the public COVID-19 primary health centres where PCR sampling could be done (Updated MoH document n°73 on September 16th, 2020) based on a broad appreciation of the clinical state and the case definition. Moreover, the first-line treatment act as a preventive

measure based on the medical decision or the self-decision influenced by the disease risks' perception, personal experience, and individual fears mitigated to social phobia.

With regard the perceived low rate of COVID-19 deaths, **Table 1** show another view in comparison with countries that have similarities in the total number of population, density per Kilometre square (Km^2), socio-demographic situation, cultural extended families, and individual health vulnerabilities. Indeed, except for Iraq all cited countries noticing low rates than Morocco with an expected increase of three times by the end of the year.

Conclusions

The insidious COVID-19 inter-human transmission will continue the spread, and more complicated severe and critical cases will appear soon. This insidious transmission is a dangerous blind threat, that needs an urgent reimplementation of **accurate Molecular quantitative RT-PCR tests** with no cross-reactivity bias[2] to target all endemic areas before the start of the winter season, with the hope that may address almost all diagnostic discrepancies. This diagnostic effectiveness could be enhanced by associating chest tomography, sensitive stools exams and COVID-19 point of care tests in the diagnostic decision tree (Manuscript submitted for publication). Similarly, defining the viral load level of each hospitalized patient could prevent unwanted intra-hospital transmission. Additionally, sustaining strict control of international travellers could avoid the risk of new emerging and gene-modified SARS-CoV-2 spread.

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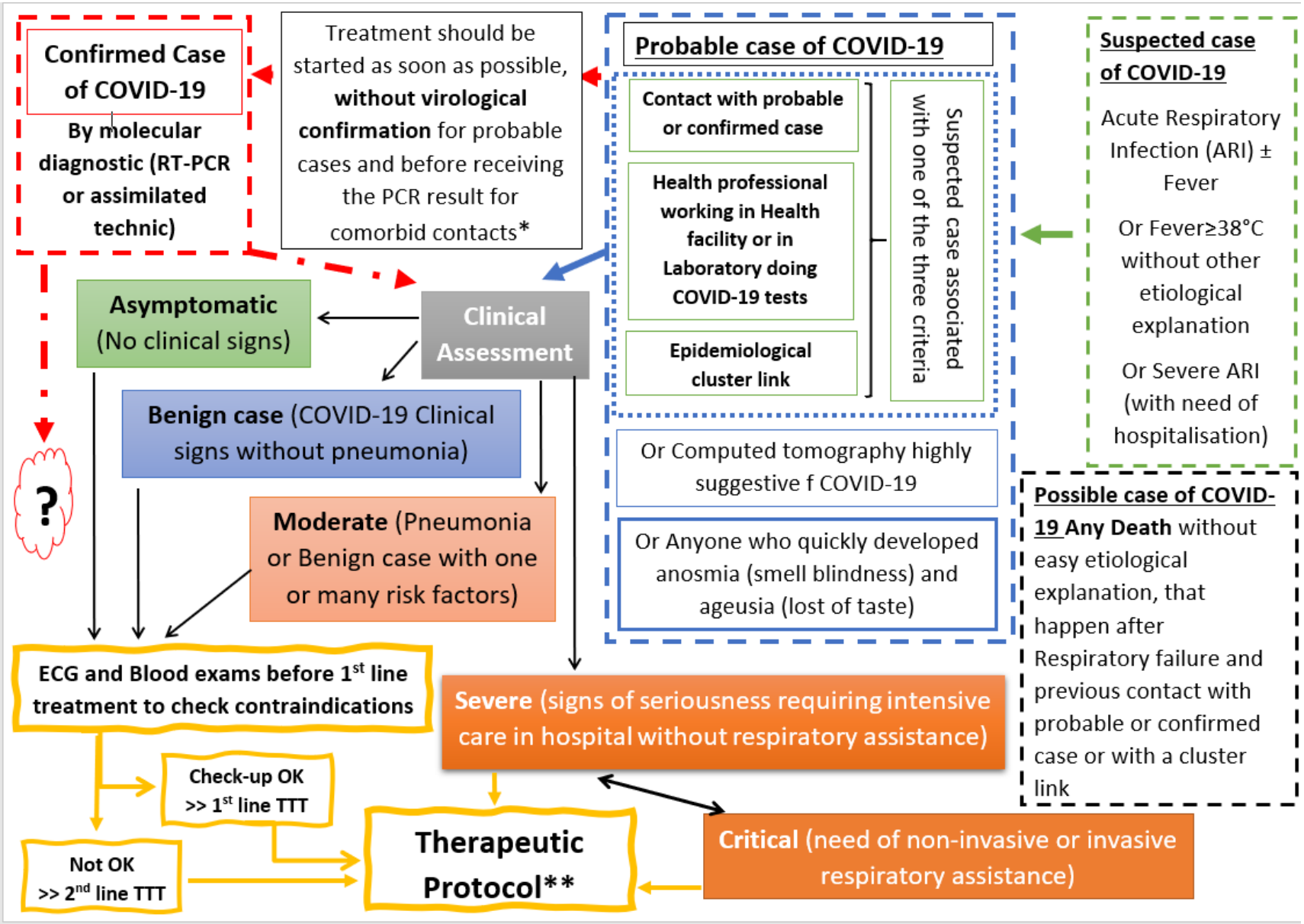

(*) Waiting for the RT-PCR result to start the treatment (TTT) lead to an increase in the risk of complications, to increase the death probability, to prolong the spread of the virus.

(**) first intention TTT based on Chloroquine 500 mg two times per day or Sulphate of Hydroxychloroquine 200 mg three times per day. With association to Antibio-therapy (Azithromycin 500 mg in day1, then, 250 mg per day from day 2 to day 7). The antibiotic therapy is not systematic, just provided if there is a bacterial sur-infection. The symptomatic TTT depending on the clinical state of the patient. The 2nd line TTT is the association Lopinavir/Ritonavir 400 mg twice a day for ten days.

The Asymptomatic cases take the 1st line treatment for seven days; then, they continue isolation until day 14. The asymptomatic case is declared recovered after seven days of treatment without the appearance of any COVID-19 symptoms.

The symptomatic cases take the 1st line treatment for ten days with isolation for a total of 14 days. The duration of treatment could be prolonged for five additional days before switching to the 2nd line treatment. The symptomatic case is declared recovered after ten days of treatment with the absence of any clinical sign or fever after three consecutive days.

The hospitalization is dedicated to all asymptomatic or symptomatic benign cases with many risk factors, the moderate, severe, and critical cases. Alternatively, the benign cases managed initially in-house without any improvement during ten days of treatment.

The managed cases in-house are dedicated to all asymptomatic or symptomatic benign cases without risk factors. The nearest Health centre providers should regularly follow the case to detect quickly any TTT side-effect or health state worsening. Transfer to the hospital will be done for cases with worsening clinical states. Or, if no improvement after ten days of treatment provided for symptomatic benign cases.

Figure1: The Moroccan update of SARS-CoV2 infection case definition and the COVID-19 case management protocol (MoH decision n°69 on September 2nd, 2020)

Figure 2: Selected word cloud

Table1: Comparison between some countries and Morocco about COVID-19 Deaths reported to the general population and the population density ratio (Update until September 22nd, 2020)

Country	Density in 2018 (People/km²)	Total population in 2019 (x1000)	Total COVID-19 until 22 Sept last 24h	Active COVID-19 in 22 Sept last 24h	total COVID-19 Deaths until 22 Sept last 24h	Ratio of deaths to overall population (per 100000 people)	Ratio of COVID-19 deaths per million people	Standardized Ratio of COVID-19 deaths per Density of 1000 People/Km²	Standardized Ratio of COVID-19 deaths per Density of 3000 People/Km²
Jordan*	111	10101	5679	1939	33	0,3	3,3	0,4	**1,1**
Cote d'Ivoire*	78	25716	19327	577	120	0,5	4,7	0,4	**1,1**
Malysia	97	31949	10358	665	130	0,4	4,1	0,4	**1,2**
Algeria*	18	43053	50214	13218	1689	3,9	39,2	0,7	**2,1**
Ouzbekistan*	76	33580	52685	3176	442	1,3	13,2	1,0	**3,0**
Tunisia*	75	11694	11260	8710	164	1,4	14,0	1,1	**3,2**
Kenya*	89	52573	37218	12412	659	1,3	12,5	1,1	**3,3**
Ghana*	129	30417	46062	507	297	1,0	9,8	1,3	**3,8**
Senegal	84	16296	14759	2836	302	1,9	18,5	1,6	**4,7**
Morocco*	**81**	**36471**	**105346**	**17574**	**1889**	**5,2**	**51,8**	**4,2**	**12,6**
Irak	90	39309	327580	57141	8682	22,1	220,9	19,9	**59,6**
Germany	236	83132	276736	20947	9489	11,4	114,1	26,9	**80,8**
France	119	67059	458061	333715	31338	46,7	467,3	55,6	**166,8**
Spain	93	47076	682267	500987	30904	65,6	656,5	61,1	**183,2**
Belgium	379	11484	103392	74465	9950	86,6	866,4	328,4	**985,1**

(*) Part of the middle-income countries group

Source: World Bank Data and covidvisualizer.com