LETTER

Iranian Urology Association Coronavirus Disease 2019 (COVID-19) Taskforce Pamphlet (IUA-CTP) Recommended Practice based on National Epidemiologic Analysis

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Disclaimer and position: This pamphlet is a manuscript written under the auspices of the Iranian Urology Association undertaken by the Research Committee and Guild Affairs Committee. This is neither obligatory nor a forensic reference although supported and confirmed scientifically by authors and recommended to be trusted. We know that the situation of the Covid-19 outbreak is hyperkinetic and any new scientific work or factual event may impose a drastic change in previous analyses and predictions. The urologist is the responsible and authorized party and this recommendation pamphlet is not a document to replace academic documentaries, medical evidence, health governmental organizations protocols, and decrees or patient's autonomy. Nevertheless, this may be a paragon of similar recommendation manuscripts in similar outbreaks. The scientific community is convinced to be more improvising and anticipatory for such imminent situations that may happen again and again.

INTRODUCTION

Since the emergence of Covid19 epidemic, different guidelines and protocols have been published by Urology associations. Most of these recommendations have focused on the aptitude of any disease or condition for postponement. With the evolution of the outbreak, it is clear that postponement of procedures is not the policy we can rely on exclusively. We must know where do we stand, where we are going in our country, and how useful our recommendations have been for urology practitioners. We should continue to further refine our recommendations to render them more applicable.

We think that local epidemiologic data should be incorporated in decision making process and therefore best practice recommendations to enhance its applicability. We based this notion on the various patterns of outbreak progress in different countries.

We try to draw a clearer although-to some extent- conjectural picture and to adjust our protocols to this picture of outbreak evolution in any area. Assuming that anything in this predicament is subject to unexpected changes.

Where do we stand?

A national formal report of the Corona Committee in a serologic based study has reported an infection rate of 4 to 34 percent in different provinces of Iran on 15 May 2020. At the conclusion of the report, it was estimated that 10-15 % of the population of the country on 15 May 2020, have been infected by the virus. Most infections were recent at that report reaching 86 % of the cumulative cases in the capital city of Tehran[(1)]. This report belongs to about 2 months before the date of writing this article. In a press report analysing formally declared death rates, an excess death toll of 6400 was calculated till 20th March 2020 which was about 4.5 fold of declared mortality aka 1433.[(2)] Apart from the sero epidemiologic study report of June 2020, all other accessible reports were based on PCR tests which were mostly applied in symptomatic patients, and hospital admissions. The local data in any part of the world may suffer from biases, unavailability of test equipment, non-standardized test kits, different diagnostic protocols in different periods, delay of formal recognition of entrance of the disease into the borders and lack of awareness about the disease in medical services in initiation phases, interference with H1N1 outbreak and a variety of decision-making bodies which may have different ways for statistical assessments and different aspects of engaging in the outbreak and Iran is not an exception to those limitations. We must know the course of the epidemics to know whether to delay or even accelerate the schedule of non-emergent operations and to know when will we finally reach the hopefully safe coast.

It is noteworthy that as practicing clinicians, we do not intend to show complicated statistical analyses especially in milieu of foggy statistics but to convey a concept of the rule of thumb and a vision the clinicians could rely on. At the heart of this explorations, the main question resides: Is there any sort of mass immunity or steady state endemic threshold on the horizon?

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Table 1. Schedule approach to surgical different priorities in provinces with different epidemiologic profiles

	Urgent	Required	Scheduled
High seroprevalence			
High Spread Speed	ND	Delay for 1-3 months if possible	Delay 3 months
Medium Spread Speed	ND	ND	Delay 6 months
Low Spread Speed	ND	ND	ND or Delay for a whole year: Discuss with the patient
Medium seroprevalence			
High Spread Speed	ND	ND	Delay 6 months
Medium Spread Speed	ND	ND	ND or Delay for a whole year: Discuss with the patient
Low Spread Speed	ND	ND	ND or Delay for a whole year: Discuss with the patient
Low seroprevalence			
High Spread Speed	ND	ND	Delay for a whole year: Discuss with the patient
Medium Spread Speed	ND	ND	Delay for a whole year: Discuss with the patient
Low Spread Speed	ND	ND	ND

Abbreviation: ND, No delay

We are presuming and so far as it seems- that no novel treatment or vaccine will come in the paradigm and if hopefully so, the whole story must be rewritten. Although sparse cases of return of symptoms and/or positive tests after negation have been reported they are exceptions rather than the rule and it is not well known whether they are presenting real reinfection of the disease or reactivation of the virus after inadequate suppression and sheltering of the virus[3]. Animal reports are also reporting an immunity against reinfection.[4] Prudently we can assume that most probably at a population level, reinfection is not a frequent occurrence.
The pattern of distribution: In Iranian National Corona Committee (NCCC), provinces were categorized into three groups regarding the cumulative rate of seropositivity: high seroprevalence, medium seroprevalence, and low seroprevalence[5]. According to seroepidemiologic studies of 15 May 2020 released by the NCCC[1], the seropositive rates were: 34%(SD=5) in the high seroprevalence group, 12%(SD=2) in the medium seroprevalence group, and 4%(SD=1) in the low seroprevalence group. Overall, the prevalence of infection all over the country was reported to be about 16%. (**Table 2**)
This heterogeneous distribution pattern especially denotes that presently low seroprevalence provinces still need a longer time to reach disease remission due to high frequency of seroconversion while some provinces probably among high seroprevalence provinces in the report, may have already achieved it.
Herd immunity: According to NCCC report, R0 (Reproduction number at the point of first confirmed patient) in Iran which by definition is estimated at the beginning of the disease was about 2.5[6]. Most recent data are sceptical about the probability of herd immunity in COVID-19 infection.[7,8]. In an important study in Spain,

Table 2. Epidemiologic profiles of provinces. This table is based upon NCCC reports of 15May 2020 seroepidemiologic study and NCCC 9th reproduction number reports. You will find the updates of this table on IUA official site https:iua.org.ir

Province	Seroprevalence	Spread Speed
East Azarbaijan	Low	Intermediate
West Azarbaijan	Low	High
Ardabil	High	Low
Isfahan	Low	Intermediate
Alborz	Low	Intermediate
Ilam	NA	Low
Bushehr	Low	Intermediate
Tehran	Low	Low
Chahar mahal-Bakhtiari	NA	Intermediate
South Khorasan	NA	High
Razavi Khorasan	Low	Intermediate
North Khorasan		Low
Khuzestan	Low	Intermediate
Zanjan	Low	Intermediate
Semnan	Low	Low
Sisatn-Baluchestan	Low	Low
Fars	Intermediate	Intermediate
Ghazvin	High	High
Qom High	High	
Kurdistan	High	High
Kerman	Intermediate	Intermediate
Kerman shah	Intermediate	High
Kohgiluye-Boyerahmad	NA	Intermediate
Golestan	High	Intermediate
Gilan	High	Low
Lorestan	Intermediate	Intermediate
Mazandaran	High	Low
Markazi	High	Intermediate
Hormozgan	Intermediate	High
Hamedan	High	Intermediate
Yazd	Intermediate	Intermediate

Table 3. Surgical Priority Category and Schedule assignment

Emergent*	Testis torsion Priapism resistant to conservative management Penile fracture Fournier Gangrene Therapeutic action to relieve urinary retention caused by blood clots (hematoma) inside the bladder Cystectomy due to refractory bladder bleeding for palliative treatment Patient with unsustainable vital signs following penetrating kidney trauma, penetrating bladder trauma, penetrating scrotal and penile trauma Testicular rupture repair surgery following blunt trauma Surgery of kidney, testicular and scrotum abscesses Surgery to remove a variety of urinary tract prostheses that have been treated with a resistant infection or abscess Insertion of a urinary catheter into a patient with urinary retention (either a catheter through a urethra or a suprapubic catheter). Urinary tract drainage in patients with bilateral ureteral stones (either nephrostomy or TUL) Urinary tract drainage in single kidney patients with ureteral stones (including nephrostomy or TUL) Establishing drainage of the urinary tract with any primary or secondary etiology, if the delay, exposes the patient to toxic septicemia or severe decline in renal function Surgery of a patient with paraphimosis
Urgent*	Patients with testicular mass without metastasis Radical cystectomy in patients with PT2 bladder cancer or BCG-resistant in carcinoma in situ Endoscopic resection of bladder tumor in patients with high grade bladder cancer or tumor with a size of more than two centimeters Surgery for patients with Wilms' tumor or neuroblastoma unless treated with upfront chemotherapy Surgery for benign adrenal masses larger than six cm and malignant adrenal masses Surgery for high-risk prostate cancer patients (as defined by urological reference) Surgery for adrenal functional adenoma Kidney mass surgery higher than 4 cm and Bosniak cysts type 3 and 4 Cystoscopy in patients with a history of high-grade bladder cancer who are in the first year of follow-up. A patient with ureteral stones who have not had a stone passage within two weeks or the patient's pain cannot be controlled by current routine treatments
Required*	Hernia surgery that is not incarcerated Patients with bladder cancer less than 2 cm in size Surgery to treat unilateral or bilateral un descended testes Non-obstructive kidney stone Bladder stone surgery Bladder augmentation surgery or Intravesical Botulinum toxin injection Patients with kidney cancer with a size of less than 4 cm benign kidney masses simple kidney cysts Intervention to treat benign prostatic hyperplasia, whether open or endoscopic Pelvic organ prolapse repair surgery Surgery for benign adrenal masses smaller than 4 cm Cystoscopy to look for other annoying symptoms of the lower urinary tract Cystoscopy in patients with a history of low-grade bladder cancer or high-grade bladder cancer in the second or third year of follow-up Antireflux surgery for cases of obstinate break through UTI if BBD and parental compliance with prophylactic Antibiotic Therapy has been already addressed or deemed as un modifiable Pyeloplasty in a patient with progressively impaired renal function Trans-rectal prostate biopsy (PSA>10ng/ml, PSA increase or new findings in DRE and para-clinics after 3 month follow up)
Scheduled*	Trans-rectal prostate biopsy (PSA<10mg/ml, no evidence of metastasis, no increase in PSA level and no new findings in DRE or para-clinics during 3 month follow up) Uroflowmetry and urodynamic study Any planned urethral reconstructive surgery: Epispadiasis, hypospadiasis Urethral stricture not dependent on cystostomy and managed by self-calibration. Ureteral reconstructive surgery in any anatomical part that is not associated with already decreased or an ongoing decrease of renal function (such as pyeloplasty, etc.).Function should be monitored by isotope diuretic renograms. Urinary incontinence treatment surgeries not accompanied by excessive and severe psychologic distress and social crisis Surgery to treat urinary fistula not accompanied by excessive and severe psychologic distress and social crisis Patients with low-risk prostate cancer and periodic monitoring Reproductive procedures such as varicocelectomy or diagnostic testis biopsy if not associated with on the brink maternal age Installation of prosthetic prosthesis and prosthetic sphincter and correction of Peyronie plaque Surgeries for the treatment of benign pathologies of the scrotum and penis Hydrocelectomy or spermatocelectomy Sex re affirmation surgery Bladder exstrophy epispadias complex Antireflux surgery for cases without breakthrough UTI but not expected to resolve spontaneously

*Emergent: Must be done within hours, a day or two

Urgent: Not in emergent definition but still rapidly aggravating if postponed for days or a week concluding in irreversible damage.

Scheduled: can be postponed for few to several months

Required: May cause pain or discomfort and decreased quality of life

Abbreviations: NCCC: National Corona Committee

http://corona.behdasht.gov.ir/

IUA: Iranian Urology Association

IUA-CT: Iranian Urology Association Covid-19 Taskforce

the seropositivity was about 5% which was far below the expected level considering the high mortality and social impact of the disease[7]. This study concluded that this finding is against the occurrence of herd immunity. Nevertheless, there are few cases of documented reinfection if any[3].The humoral response of the body has been quoted to have a short duration up to 6 months[9] and clearly, herd immunity has been uniformly rejected as a reasonable exit strategy[10] and we know the facts.
Albeit in our country the outbreak has traversed certain limits and the sole condition that presumptively may restrict the dissemination of the disease is some sort of –even temporary-crowd immunity or even increasing percentage of non-susceptible population and achievement of an endemic steady state situation. We can also hope that humoral immunity is not the sole immunity mechanism of the body and there are still cellular mechanisms that have not been addressed in recent studies or have been deliberately not trusted as the best fortunate scenario. Undoubtedly the course of the epidemic must be under strict surveillance and we must be flexible for any change of policy.
In provinces with an explosive beginning of the outbreak e.g. Gilan and Qom with seropositivity above 60% in the NCCC report[1], the reproduction number has declined considerably (Gilan:0.84, Qom:1.12) conveying occurrence of some sort of immunity or impediment of virus transmission at least regionally.
3)Herd immunity threshold: In a non-peer-reviewed paper[11] the herd immunity level was differentially predicted adjusted by the number of R0 and activity levels in different communities. In this paper, herd immunity levels were estimated to be lower than those which were traditionally estimated. The presumption was that reproduction number would be higher among more outgoing and socially involved individuals. The threshold predicted for communities of R0=2.5 was about 43%. The NCCC report of our country declared the initial reproduction in Iran about this number[6]. Classically with R0=2.5 a threshold of 60 %(1-1/RO) is suggested. Whatever the threshold, the important point for the purpose we are following i.e. scheduling of surgical procedures, approximation of reproduction number to 1 is important. At this condition the exponential spread curve will change into linear mode and medical facility workload will be eased.
Epidemiologic conclusion: We tried to draw estimations which are both comprehensible and sensible for clinical practitioners. The statistical data are contradictory and confusing but still rule of thumb estimations at the present point is the best we can get. No doubt this picture is contestable and subject to radical changes due to the unpredictable nature of the disease, micro-organism, and human behavioural interactions with such situations.
We must drastically take into account the variation of the outbreak situation in different provinces.
In some provinces with high seroprevalence, the reproduction number is decreasing despite the critical situation and health service heavy load that they endure now. The provinces are specified by name and level of seroprevalence in fact sheet report No. 48 of NCCC. [5] We may conclude that in provinces with high seroprevalence and high point reproduction numbers, stabilization of the disease may happen earlier compared to provinces with low seroprevalence and intermediate or low reproduction numbers, including Tehran (The Capital). We are not conveying the concept that the disease will go away at these forecast periods but we are surmising the reproduction number will approach 1 and the new hit rate will be considered fairly manageable. These remarks may play a critical role in clinical decision making and to decrease the pitfalls and misconceptions, the situation must be scrutiniously monitored.
Table 1 suggests the prioritized approach to urological surgeries in provinces with different epidemiologic profiles. The tutorial at the end of the article would help us to plan for surgeries. For example, in a province with lower seroprevalence and low or intermediate reproductive number (spread speed), it would be better to perform scheduled, required, and urgent surgeries as soon as possible and no need to wait due to the prediction of later stabilization (No delay) but in provinces with high seroprevalence and high reproductive number, it is predicted that we will achieve stabilization sooner and we can plan to perform required and scheduled surgeries later.
The third version of IUA-CTP
Two versions of Iranian Urological Association Corona Taskforce Pamphlet (IUA-CTP) were emitted by the Iranian Urological Association (IUA) Research and Professional Committee. For the present version, we decided to publish a more comprehensive and detailed pamphlet addressing all the considerations posed in this article. Regarding all the arguments above, we speculated to incorporate the NCCC categorization of provinces into high seroprevalence, medium seroprevalence, and low seroprevalence into the recommendation dash board (**Table 2**). Alongside, we must consider the speed of disease spread in any area represented by R (Point Reproduction number). For this reason, the NCCC ninth reproduction report was used. In this report, provinces were divided into three groups of low spreading speed (R 0.7-0.9), medium spreading speed (R 0.9-1.08), and high spreading speed (R 1.08-1.32)[6] (**Table 2**).
In previous versions of IUA-CTP, the urologic procedures were stratified in 4 categories of Emergent, Urgent, Required, and Scheduled mostly regarding the potential of postponement. (**Table 3**)
Emergent: Must be done within hours, a day or two
Urgent: Not in emergent definition but still rapidly aggravating if postponed for days or a week concluding in irreversible damage.
Required: May cause pain or discomfort and decreased quality of life but does not aggravate or cause irreversible damage in the specified postponement period.
Scheduled: Neither aggravates nor causes a new decrease in quality of life, can be postponed for few to several months with acceptable and stable health status compromise.
Emergent procedures are done in emergency settings and are usually not subject to controversy. Below tables are addressing all categories of elective procedure
In conclusion, a clinical decision in COVID 19 era cannot be made before drawing a clear picture of outbreak progress in the area. We decided to complement previous versions of IUACT-P with appraisal of the reports of the outbreak in different provinces. We tried also to make predictions despite the epidemiologic data scarcity and contradictoriness, about the progress of the situation in each province and write the new practice recommendation pamphlet (IUA-CTP) addressing these

considerations.
To pick a recommendation for any specific urology condition in your area of practice, you can follow this tutorial:
Tutorial: How to find recommendation:
a) Specify the procedure you are deciding about
b) Find the "assigned priority category" in table 3: Urgent, Required, Scheduled
c) Pick up your province in table 2
d) Confirm your province epidemiologic profile to the procedure category in table 1. You will find the suggested verdict

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