



Prevention and Treatment System against COVID-19 by Whole-process Management and Innovation —SRRSH Experience

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中国医疗机构
最佳雇主



Loma Linda University
Health



**MAYO CLINIC
CARE NETWORK**
Member



Outline

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Overview

of the campaign
against the virus
in SRRSH

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Early Stage of Epidemic:

Prepared for action

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Outbreak Period:

First-level Response to
Major Public Health
Emergencies

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Restoration and
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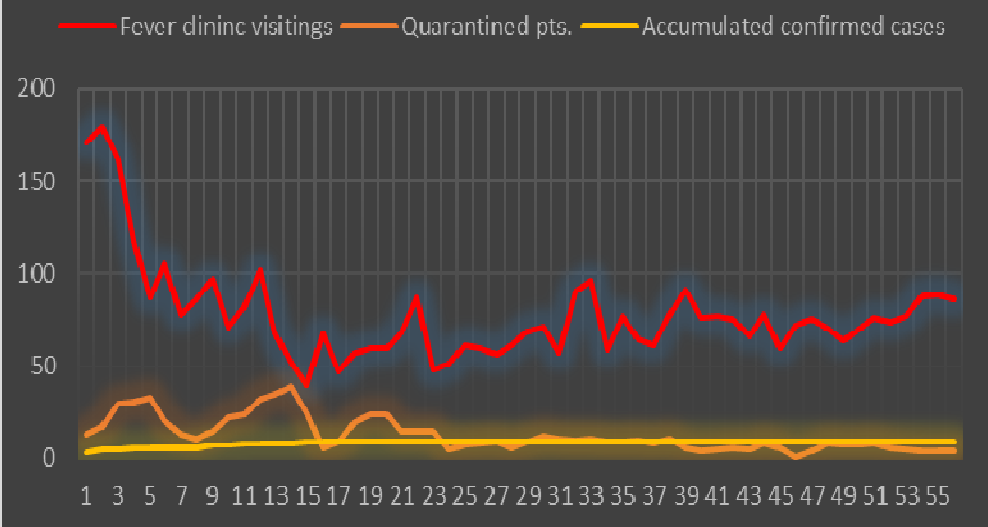
Management of Severe and Critical Patients:

The experience from
frontline teams



Overview of the Campaign

Monitoring of fever clinic pts. and suspected carriers



- No. of pts. with fever clinic visiting: **4,659**
- No. of suspected carriers isolated: **328**
- No. of pts. diagnosed: **9**
- No. of sample tested: **1,350**
Positive with COVID-19: **9**
- No. of staffs engaged in the frontline: **13,860**
- No. of pts. hospitalization/surgical procedures:

16,075 / 2,641

Duration: From Jan. 14 to Mar. 19 (65 days)

NO DEATH, NO HOSPITAL INFECTION!



SRRSH

Early Stage:
Prepared for action



Rapid Response of Leadership



2020
Jan 14

First coordination meeting for
prevention and control planning

- Leading group for prevention and control of COVID-19 infection
- Experts and rescue team for COVID-19 infection

2020
Jan 18

浙江大学医学院附属邵逸夫医院发文文件
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浙江大学医学院附属邵逸夫医院
新型冠状病毒感染的肺炎诊治领导小组

医院各科室：

根据《传染病防治法》、《突发公共卫生事件防治条例》、《新型冠状病毒感染的肺炎诊疗方案（试行）》和《新型冠状病毒感染的肺炎疫情防控方案（试行）》等法律法规和诊疗方案的要求，为做好本院新型冠状病毒（2019-nCoV）感染的肺炎诊治防治工作，确保组织到位，防治规范有序，经决定成立我院新型冠状病毒（2019-nCoV）感染的肺炎诊治防治领导小组、工作小组、专家组和抢救支持小组。名单如下：

领导小组：

组 长：蔡秀军、刘利民
副组长：潘宏铭、张松英、周建扬、俞云松
成 员：谢鑫友、乔 凯、庄一瑜、陈文军、丁勇、吕芳芳、袁玉华、朱雅芳

Official Issued Document



ERP and Workflows

THE HOSPITAL LEVEL

- ✓ ERP for acute infection diseases (updated)
- ✓ ERP for prevention and control of COVID-19 infection
- ✓ Workflows for surgical procedures during the period of COVID-19 epidemic
- ✓ ERP for inpatients wards during the period of COVID-19 epidemic
- ✓ Workflows for fever clinic and quarantine wards
- ✓ Guideline for quarantine wards remodeling
- ✓ Guideline for clinical sampling and inspection of Suspected carriers
- ✓

THE DEPARTMENT LEVEL

- ✓ Workflows for radiology
- ✓ Workflows for ultrasound
- ✓ Workflows for EKG
- ✓ Workflows for DSA room
- ✓ Workflows for Hemodialysis center
- ✓ Workflows for Endoscopic center
- ✓ Workflows for Clinical laboratory
- ✓ Workflows for nuclear medicine department
- ✓ Workflows for COVID-19 infection with ACS
- ✓

COVID-19 related Training & Evaluation



Training for physician, nurse, and rescue team



Guidelines and workflows are available online



Mandatory online test for each medical staff



Hardware Preparation for Quarantine



Assigned work space

- ✓ Assigned work space was prepared in **Radiology and laboratory system**



Wards remodeling

- ✓ **4 units** were remodeled for quarantine of suspected carriers
- ✓ **2 units** were remodeled as fever clinic
- ✓ **1 negative pressure room in ICU** was prepared for severe or critical case of suspected carrier
- ✓ **Emergency quarantine room** in each inpatient floor was prepared



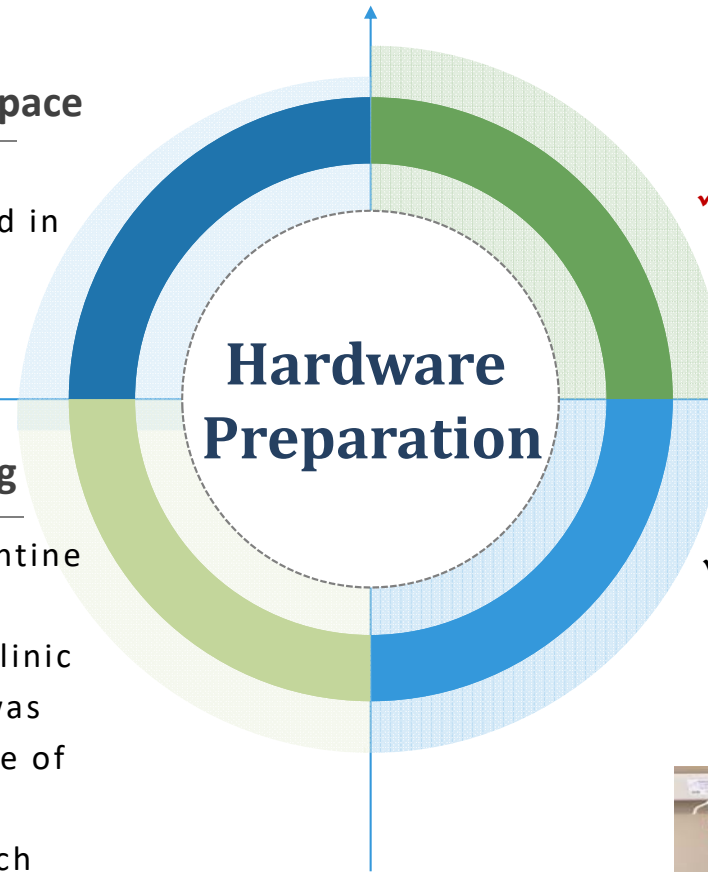
Transferring system

- ✓ **Medical transferring system**, including transportation, for the confirmed cases was set up



COVID-19 alert and report system

- ✓ Established a **hospital-wide COVID-19** alert and report system.

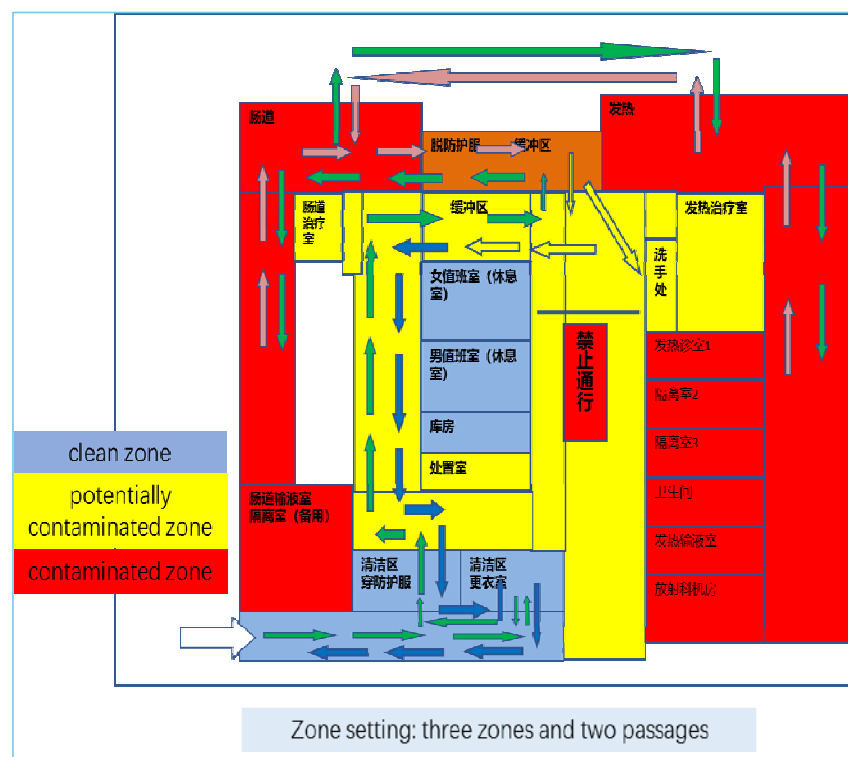
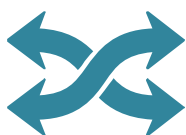


Gate of COVID-19 Control – Fever Clinic

Rational Design



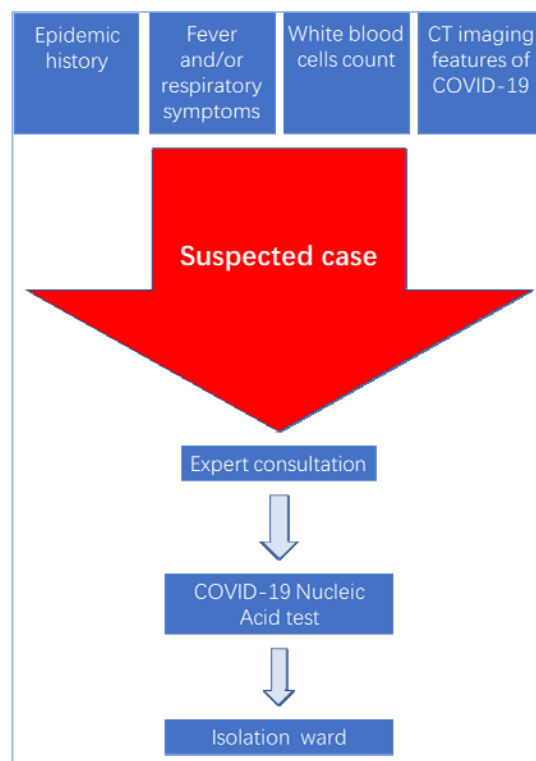
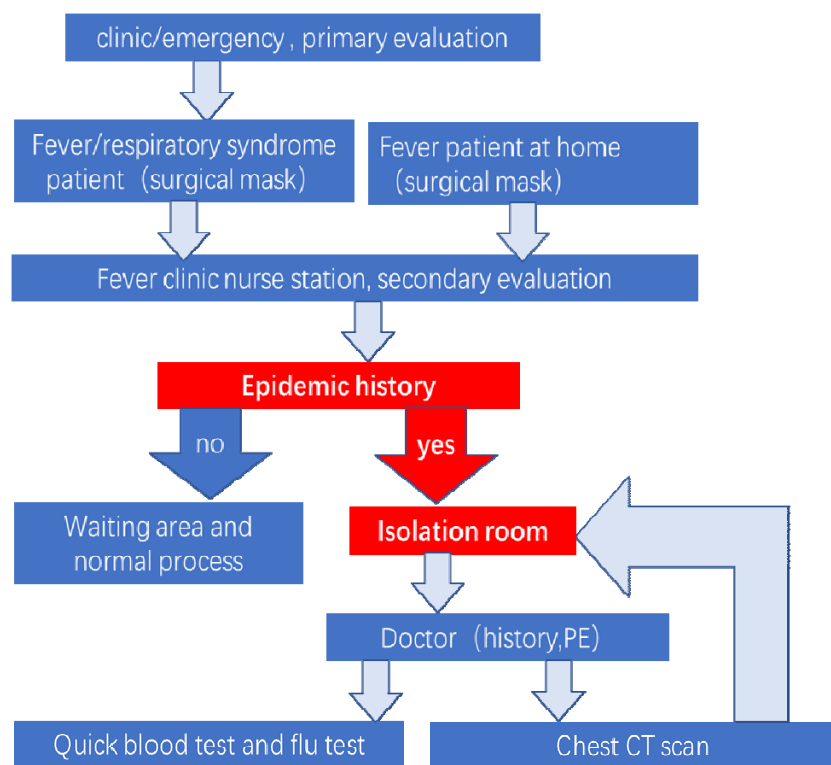
Clear Signs



Designated Route to Radiology Room



Gate of COVID-19 Control – Fever Clinic



Well Equipped Staff



SRRSH

Outbreak Period:

First-level Response to
Major Public Health
Emergencies



INNOVATIONS

Upgraded Prevention and Control Procedure on Campus

- A standardized process to take care of the pts. from entrance to ward



Internet + Medical Service

- A solid AI epidemic prevention system

Integrated Medical Resource with Frontlines

- Individualized treatment for each patient



Upgraded Prevention and Control Efforts on Campus



Screening Point

Screening Point -

Temperature and epidemiological history screening at the main entrance gate



Health QR Code

Health QR Code -

Based on online epidemiological questionnaires and big data (including real-time public data and the social credit system, such as travel, medical records, and Epidemiological history)

- **Red** - Fever Clinic;
- **Yellow** - Special outpatient area;
- **Green** - Normal outpatient area.



Yellow Color Area



Outpatient



Upgraded Prevention and Control Efforts on Campus

Inpatient

Admission Procedures

High selective admission (emergency/elective)

1

Reconfirm the epidemiological history and Health code (pts. and companions)

2

Mandatory chest CT scan before admission

3

Fixed room and floor for designated physician

4

Informed consent for the strict hospitalization rules during the epidemic

5

浙江大学医学院附属邵逸夫医院 新冠肺炎防控措施住院患者及家属告知和承诺书

尊敬的住院患者及家属：

你们好！

为做好新型冠状病毒肺炎防控工作，切实保障你们的身体健康和生命安全，根据《中华人民共和国传染病防治法》、《浙江省突发公共卫生事件应急预案》、国家卫生健康委《新型冠状病毒肺炎防控方案（第四版）》和浙江省《全省强化疫情防控重点措施重要机制等工作手册》及全省新型冠状病毒感染的肺炎疫情落实排查工作和隔离措施等工作量求的通知》等法律法规和相关通知文件的要求，结合目前防控形势及我院实际，现将我院有关新冠肺炎防控措施告知如下，请务必诚实汇报，严格遵守我院相关规定：

1. 请确认本次就诊时有无如下情况：

1) 14天内有无发热：□ 是 □ 否

Informed Consent



- **Management of inpatients' companions**
 - Wristband, the only identification for entrance
- **Temperature and health code reporting system for pts. and companions**

[illegible]



Innovative AI Epidemic Prevention System at SRRSH

Exp 1: Online promotion & education



Published **16** articles
about this epidemic

More than 100 thousand
PViews per article



Organized **19** online lectures
on epidemic prevention

More than 10 thousand
audience in one lecture



Broadcasted **14** live sessions
on psychological advisory

More than 1.26 million
audience cumulatively





Innovative AI Epidemic Prevention System at SRRSH

Exp 2: Remote inquiry & consultation



The domestic earliest remote inquiry and consultation line

More than 104 teams of medical specialists



Serving for 32674 patients

more than 168 thousand online advisory



Serving for more than

4260 residents of Wuhan online



Supporting more than 1000 people in psychological advisory online



Innovative AI Epidemic Prevention System at SRRSH

Exp 3: Online AI Self-test for COVID-19

Structured medical
knowledge base

Knowledge Graph
technology

NLP technology

Medical inference engine

Integrated into
SRRSH HIS

× 冠状病毒肺炎自测

智能自测
自测中 **

新型冠状病毒肺炎自测

浙江大学附属邵逸夫医院

早预防、早发现、早诊断、早隔离、早治疗，是防治新型冠状病毒肺炎的关键。

如何预防冠状病毒？

1. 用肥皂和清水洗手或含有酒精成分的手消毒剂。
2. 咳嗽和打喷嚏时使用纸巾或弯曲手肘遮盖口鼻。
3. 避免近距离接触任何有感冒或流感样症状的人。
4. 烹饪时彻底煮熟肉类和蛋类。
5. 在无保护时避免接触野生动物和家禽家畜。

进入智能自测



NHC

Highly recognized and prompted



10 seconds AI risk assessment

Link to remote consultation



The whole patient screening forward

Treatment separately for patient at risk



Applied to more than 584

online medical institutions



16.2million

Online registered users



Online Prescription and Follow-up System for Chronic Disease

重磅发布

浙江省医疗保障局 试点医保在线支付

——目前仅限省级参保人员——

- 慢病在线复诊
- 药品配送到家
- 医保自动结算

Online follow-up

Delivery of
medications

Automatic billing
with insurance

足不出户，获得优质医疗服务



Procedures:

- 1 Click online clinic
- 2 Select Follow-up
- 3 Online inquiry
- 4 e-prescription
- 5 Delivery methods
- 6 Delivery address
- 7 Pay by insurance
- 8 Pay the co-pay
- 9 Medications Delivery

浙江大学医学院附属
邵逸夫医院

微信公众号

“浙大邵逸夫医院”



操作流程

- | | |
|---|---------|
| 1 | 点击互联网医院 |
| 2 | 选择在线复诊 |
| 3 | 医生在线问诊 |
| 4 | 收到电子处方 |
| 5 | 选择配送到家 |
| 6 | 填写配送地址 |
| 7 | 选择医保支付 |
| 8 | 支付自费部分 |
| 9 | 等待药品到家 |



Integrated Medical Resource with Frontlines

MDT & Individualized Treatment

In campus specialists conducted video MDT with medical rescue teams in Wuhan and Jingmen of Hubei

Implemented individualized treatment for every single severe or critical case



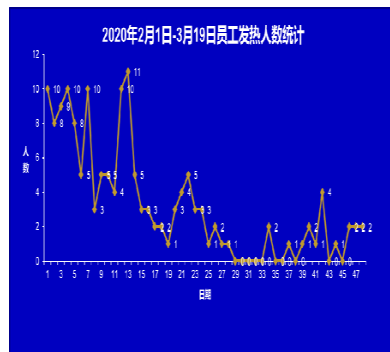


Innovative Tips for Preventing Hospital Infection

Temperature & Symptom Monitoring System (TSMS) for staffs with fever and aspiratory symptoms



Daily COVID-19 prevention and control quality checklist from each staff



Changed the dinning styles: both for staffs and pts.



Meal delivery Robot in Quarantine Wards

Changed work styles: all the meetings or academic activities went online modes



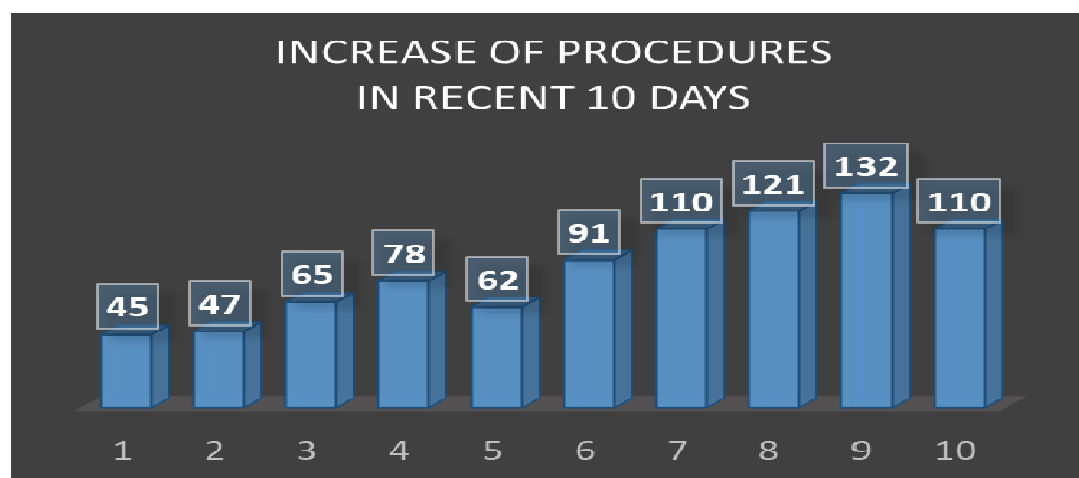
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Post-Pandemic:

Restoration and
Precaution



Restoration & Precaution



Restoration of medical practice

- Enlarge the admission criteria
- Re-open the reserved inpatient wards
- Re-start of scheduled surgical procedure



Efforts on local business restoration

Instructions and guideline



Strengthen innovations in the pandemic

- Health code
- AI Epidemic Prevention System
- Self checklist • TSMS



Psychological intervention for the staffs





SRRSH

Management of Severe and Critical Patients :

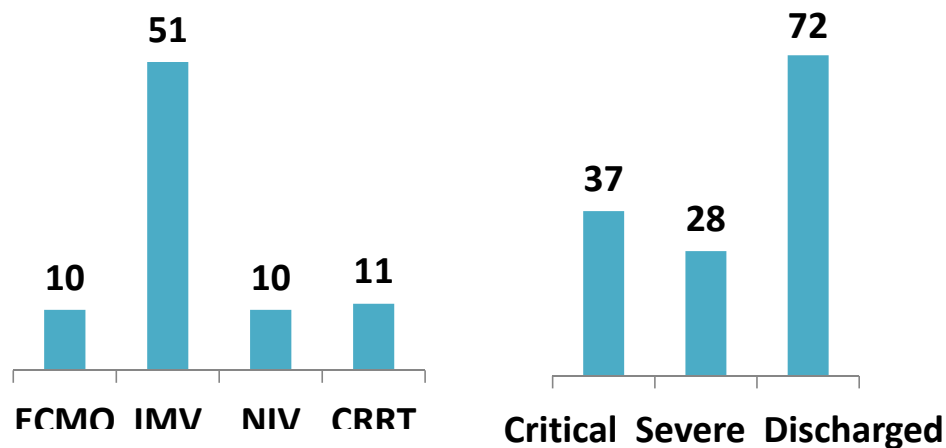
Experience from
Frontline Teams



Management of Severe & Critical pts.

8 batches of rescue teams with total **189**
Medical and nursing specialists (Jingmen and
Wuhan in Hubei, etc)

Patient Data from Rescue Teams in Wuhan & Jingmen



Sir Run Run Shaw Hospital

Medical rescue teams from SRRSH



Taking care of severe and critical pts.



给您真诚、信心和爱



Dispatch of SRRSH Staff

142

Wuhan Union Hospital Tumor Center

5

Wuhan Puai Hospital

1

Wuhan Tianyou Hospital

1

Wuhan Fangcang Hospital



Sir Run Run Shaw Hospital



35

Hospitals in Jingmen

1

Hospitals in Shaanxi

1

First Affiliated Hospital,
Zhejiang University School of Medicine

1

Fourth Affiliated Hospital,
Zhejiang University School of Medicine



给您真诚、信心和爱



Management of Severe & Critical pts.

- ① Characteristics of severe respiratory failure
- ② Ventilation support recommendations
- ③ Treatments
 - Antiviral Treatment
 - Supportive Treatment
 - Corticosteroids: controversial for the dose and duration
- ④

To be continued from our infection disease specialists on Q&A



THANK YOU

**The virus has been beyond borders,
and the collaboration as well !**



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