



# Assessment of infection control and preparedness of healthcare organizations of the Republic of Kazakhstan to receive COVID-19 patients, February 2020

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Residents – 25 people

# Healthcare facility preparedness is critical

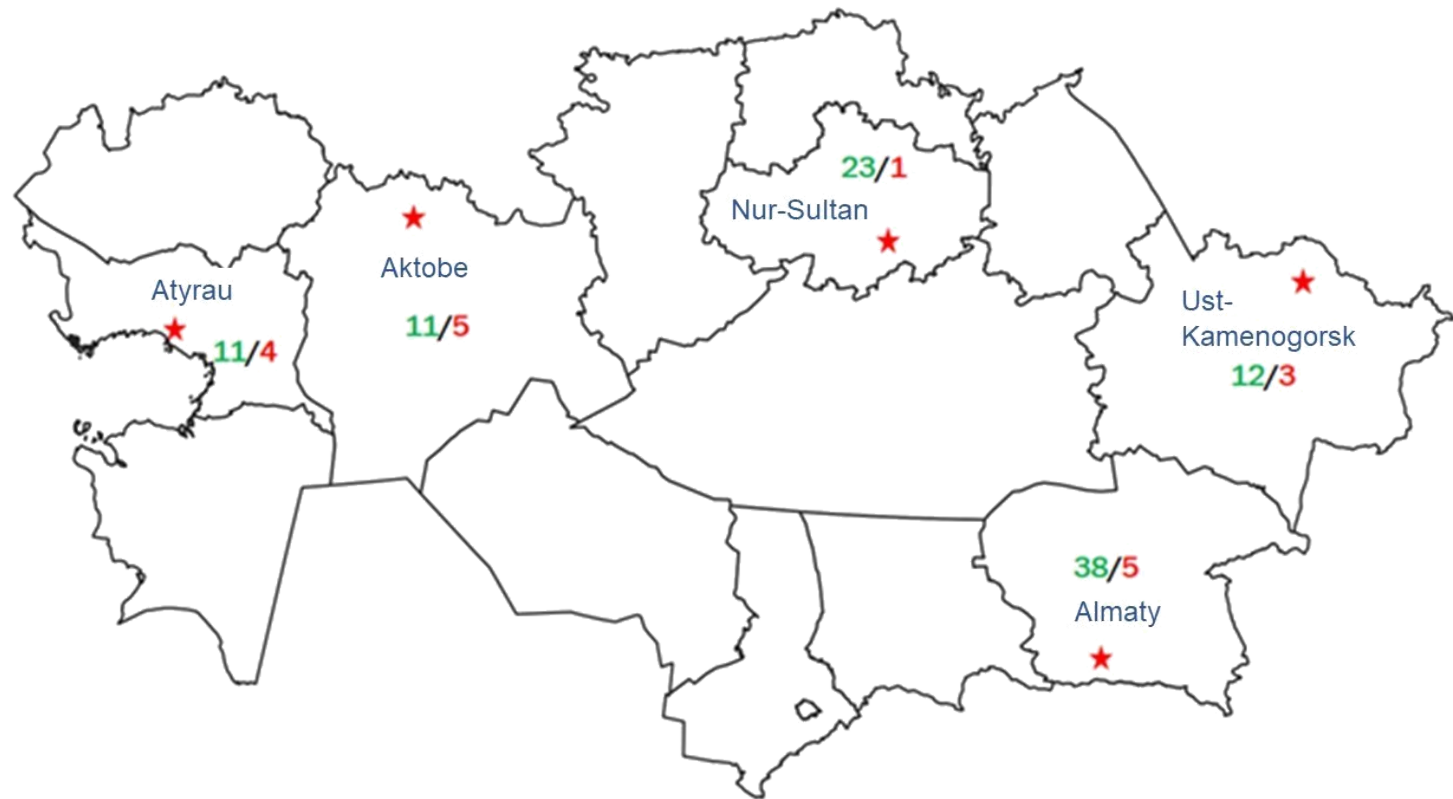
- SARS-CoV-2 transmission has a higher risk in healthcare facilities with poor infection control practices (IPC)
- In February 2020 before any COVID-19 cases were reported, Kazakhstan Ministry of Healthcare requested CDC to assess IPC of healthcare facilities and their capacity to adequately treat COVID-19 patients

# We aimed to assess:

- Triage, early detection and isolation of patients with suspected COVID-19 in inpatient and outpatient healthcare facilities
- Availability and use of proper personal protection equipment (PPE)
- Implementation of administrative controls measures
- Implementation of environmental infection controls measures
- Availability of treatments for COVID-19 patient management and care

# We conducted a cross-sectional study

- Infection control assessment tools from CDC and WHO
- Assessment period:
  - Feb 10 to March 1, 2020
- Healthcare facilities (N=113) in 5 states
  - Outpatient = 95
  - Inpatient = 18



# Study methods

- **Data collection**
  - Assessment tool
  - Covert direct observation
  - Interviewed doctors, nurses, and orderlies
- **Data analysis**
  - ECDC guide for minimum PPE requirements
  - Descriptive – percent, mean
  - Stratified by facility and city type



## We identified several gaps in triage, isolation precautions and patient screening

Below 50%

50–74%

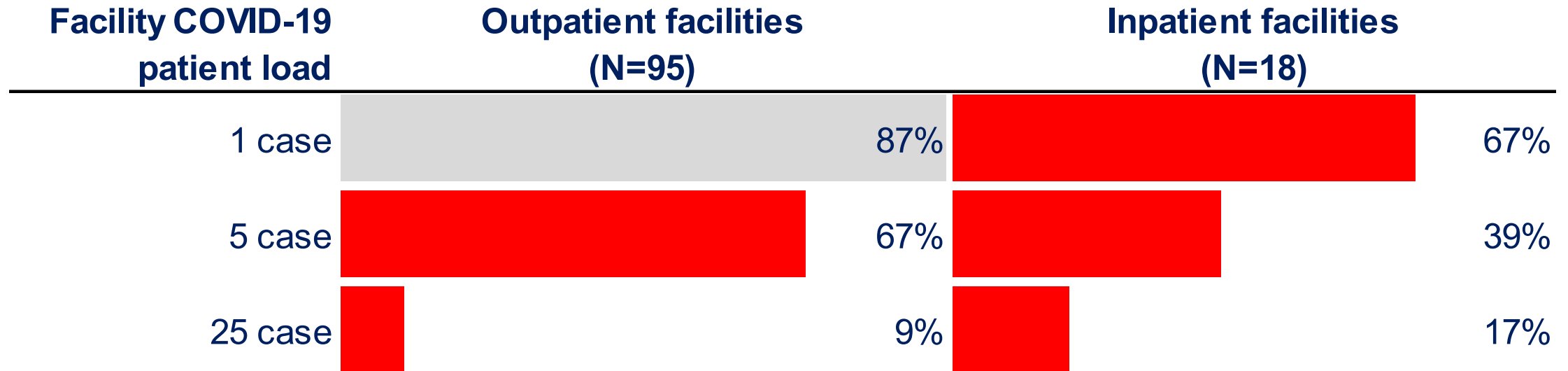
75–100%

Indicator	Outpatient facilities (N=95)	Inpatient facilities (N=18)
Triage		
Triage station	63%	67%
Employee conducting screening at entrance	74%	78%
Masks given to patients with ARVI symptoms	52%	72%
Isolation precautions		
Availability of isolation room	95%	94%
Signs indicating location of isolation room	89%	78%
Separate entrance to the isolation room	58%	83%
Availability of patient isolation room	31%	94%
Correct screening of suspected cases	77%	83%

# We found PPE counts were below eCDC minimum requirements in outpatient and inpatient facilities

Below 70%

>70%



# We found incorrect use of PPEs for suspected COVID-19 patients

Below 50%

50–74%

75–100%

Type of PPEs used	Outpatient		Inpatient	
	Isolation room (N=95)	GP's office (N=188)	Isolation room (N=18)	GP's office (N=28)
<b>HAZMAT suits with HEPA filters</b>	0%	0%	0%	0%
<b>For eyes and respiratory organs</b>				
Disposable medical masks	98%	96%	78%	96%
N95, FFP2, FFP3 respirators	59%	21%	50%	32%
Protective goggles	56%	21%	44%	43%
<b>For skin and clothes</b>				
Disposable gowns	43%	22%	56%	39%
Fabric white coat	57%	77%	78%	71%
Medical scrubs	24%	12%	89%	68%
Nitrile gloves	66%	41%	89%	68%

\*GP– General practitioner



# Identified low-level of engineering and administrative infection controls in outpatient clinics

Below 50%

50–74%

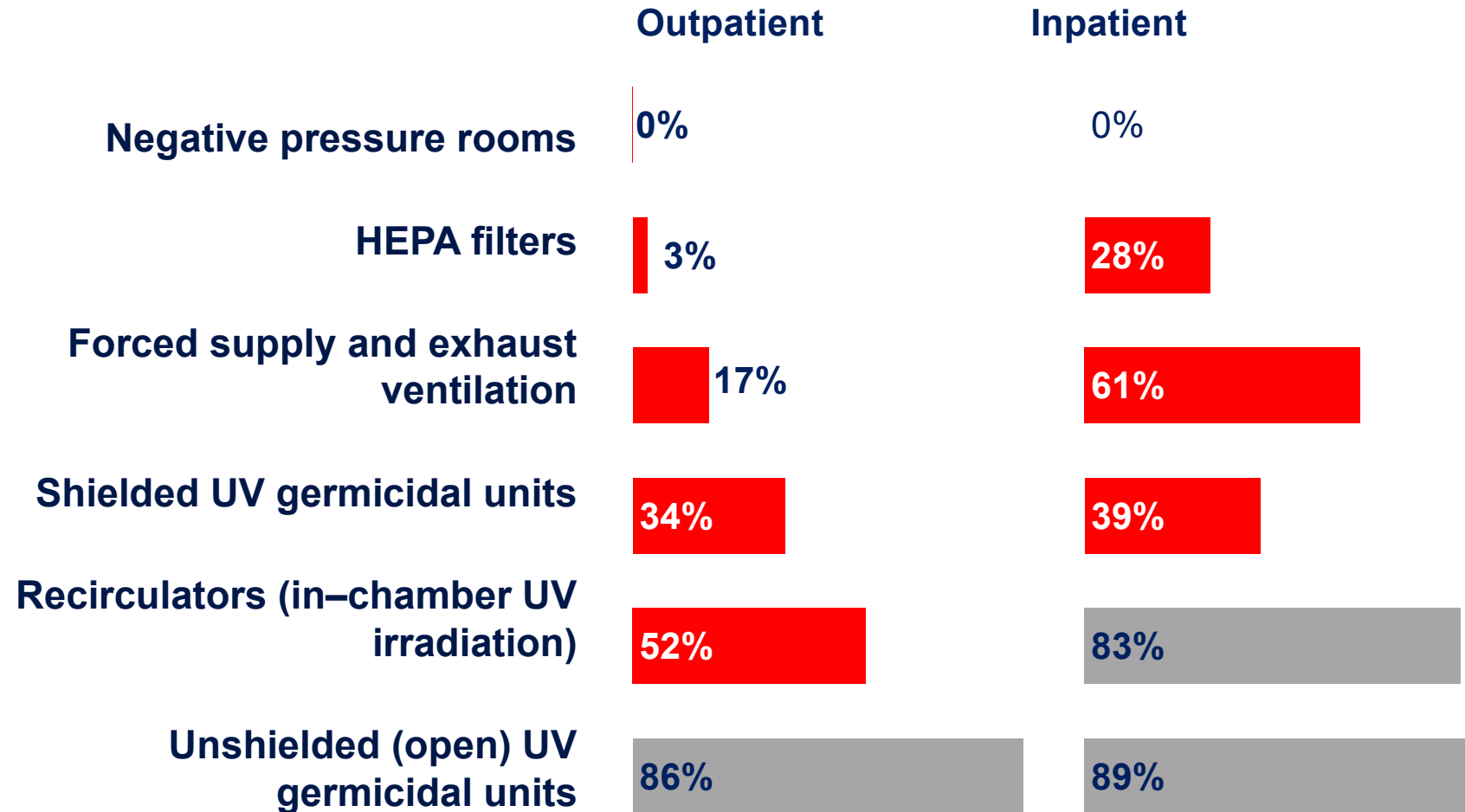
75–100%

Indicator	Outpatient facilities (N=95)	Inpatient facilities (N=18)
Infection control program in place	94%	100%
Engineers and facility specialists are members of infection control program	27%	94%
Training of employees on infection control	94%	100%
Training on COVID-19	96%	100%
Use of effective disinfectants	60%	84%

# Low level of engineering and facility protective measures against airborne and droplet infections

**Below 70%**

**>70%**



# Some gaps in preparedness of inpatient facilities to collect specimens from COVID-19 patients

Below 50%

50–74%

75–100%

Item	Actobe (N=5)	Almaty (N=5)	Atyrau (N=4)	Nur–Sultan (N=1)	Ust– Kamenogorsk (N=3)
Specimen were collected in a specialized room	100%	100%	100%	100%	100%
Safe blood collection	100%	100%	100%	100%	100%
Correct collection of nasopharyngeal swabs	100%	60%	100%	0%	100%
Proper disposable probes for nasopharyngeal swabs	100%*	60%**	100%*	0%	100%*
Availability of viral transport medium	100%	100%	100%	0%	100%
Specimen stored at 2–4°C	80%	80%	25%	0%	0%

\**plastic/ synthetic fiber*

\*\* *wood/cotton*

# Gaps in preparedness of inpatient facilities for clinical management of COVID-19 patients

Item	Aktobe (N=5)	Almaty (N=5)	Atyrau (N=4)	Nur-Sultan (N=1)	Ust-Kamenogorsk (N=3)
Antiviral drugs (packages)*					
Lopinavir+Ritonavir	800	100	5	0	0
Ingavirin	0	0	0	0	0
Ribavirin	0	200	10	0	0
Immunosuppressive therapy	2931	10747	13140	307	34682
Portable mechanical ventilators	39	64	15	10	5
Pulse oximeters	42	97	41	8	40
Oxygen systems	centralized	216	34	centralized	centralized

According to National Clinical protocol for COVID-19, February 2020

# Recommendations

- **Improve COVID-19 infection control measures to meet WHO and CDC guidelines**
  - Improve patient triage and flow
  - Provide training on COVID-19 precautions
  - Strengthen routine infection control trainings for the health care facilities
  
- **Ensure availability and correct use personal protective equipment**
  
- **Strengthen engineering controls**
  - Set up negative pressure rooms with HEPA filters for suspected and confirmed cases
  - Equip hospitals with UV germicidal irradiation
  - Train facility engineers on ventilation, air filtration systems and maintenance

# Impact of assessment

- Implemented similar assessments nationally
- Developed guidelines on "Infection prevention and control in health facilities"
- Issued orders to strengthen IPC
- Priority plan to strengthen IPC in 2022-2027

# Acknowledgments

- Ministry of healthcare of the Republic of Kazakhstan
- CDC CAR
- Directors of the regional and city healthcare departments
- Directors of healthcare organizations
- Residents of the CDC CAR Field epidemiology training program (FETP)

**Thank you!**



# Availability of PPEs was assessed per 1, 5 and 25 suspected or confirmed cases of COVID-19

Number of cases	Suspected case	Confirmed case	
		Mild symptoms	Severe symptoms
Total per 1 case	3-4	11-12	12-21
Total per 5 cases	15-20	55-60	60-105
Total per 25 cases	75-100	275-300	300-525

\*One PPE set includes a respirator (N95, FFP2 or FFP3), goggles or face shields, water-resistant gown with long sleeves, nitrile gloves