

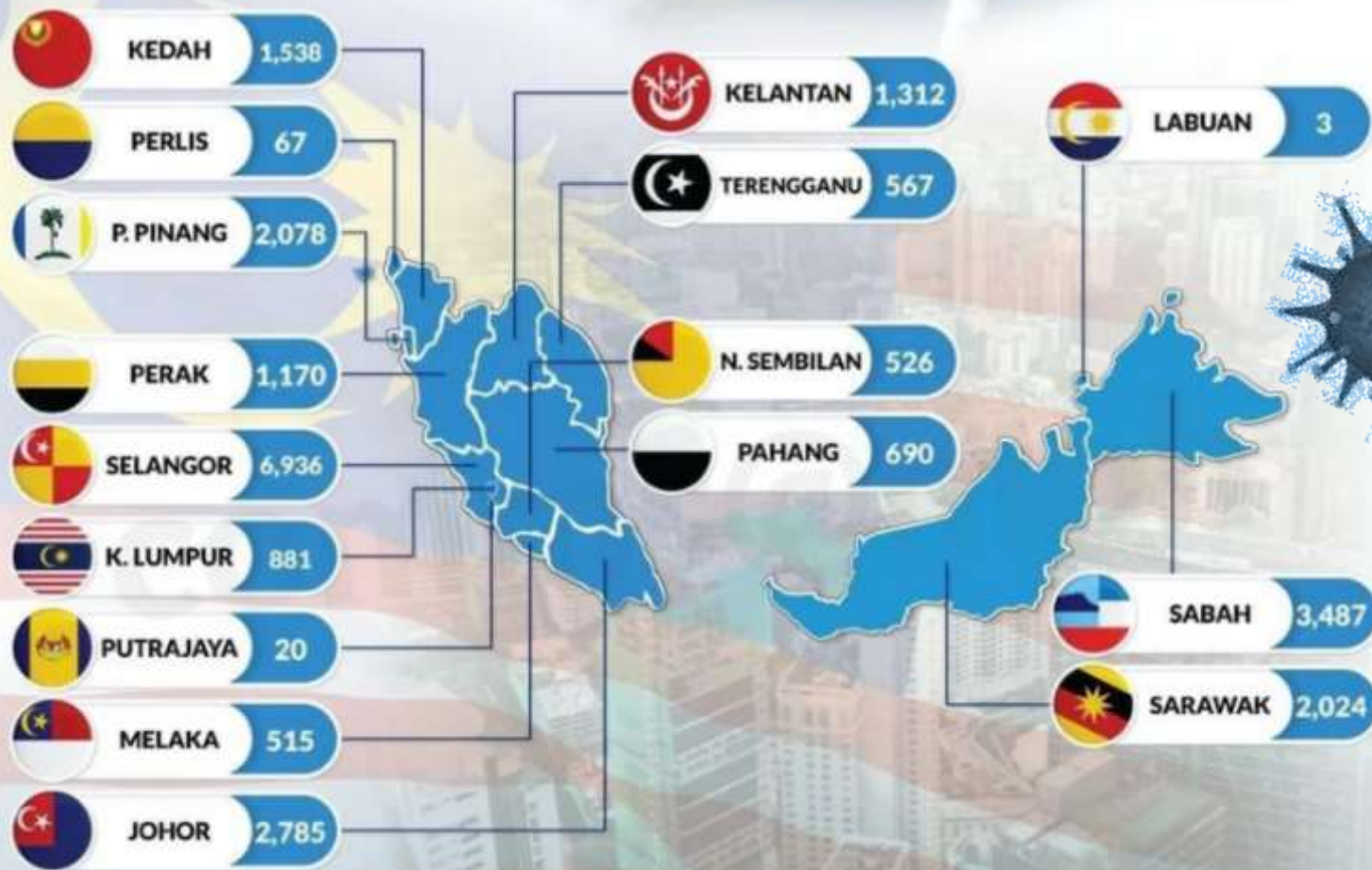
Using Digital Technology to Improve Daily Staff Health Surveillance and Assist in Automated Tracing of COVID-19 Positive Staff and Close Contacts

**Rhema S¹, Suriyani A¹, Farina S¹,
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KES BAHARU MENGIKUT NEGERI

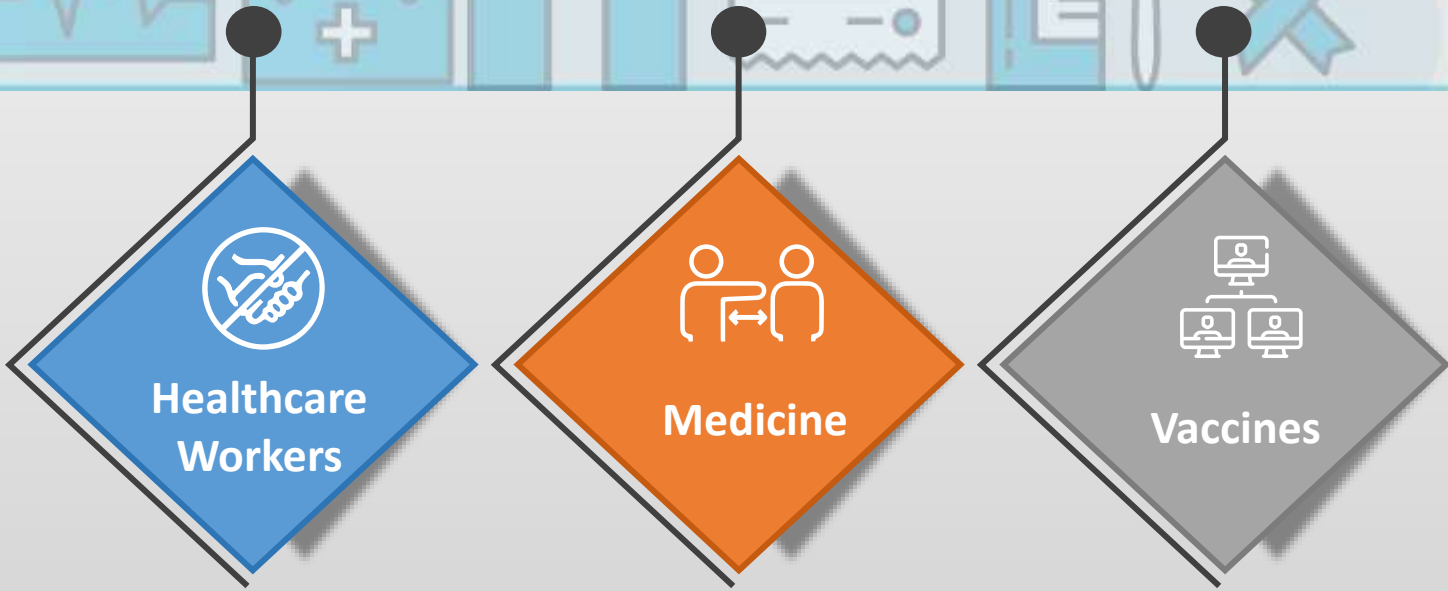


Jumlah kes baharu
24,599

Jumlah keseluruhan kes
1,640,843



COVID-19 CORONAVIRUS



TECHNOLOGY



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**Necessity is the mother
of INVENTION**
- Plato



OPPORTUNITIES FOR IMPROVEMENT

Manual Processes

- Contact Tracing
- Paper Report Submissions
- Data Transcribing

No centralized mechanism to track staff health



IMPACT OF MANUAL NATURE OF PROCESSES

Delay in isolation of COVID-19 cases



Inability to detect and monitor unwell staff



Delay in detection & prevention of clusters



Manpower insufficiencies, staff burn out



Distributed databases of information



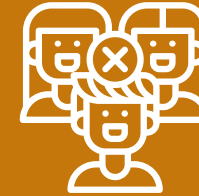
KEY MEASURES FOR IMPROVEMENT



**>90% compliance to
daily health
declaration by staff**



**Reduction in unwell
staff present at work
to less than 20 staff
per month**



**Improved number of
contact tracings
completed within
24 hours**

INFORMATION GATHERING

Audits
conducted
to
determine:

1

Number of COVID-19 clusters

2

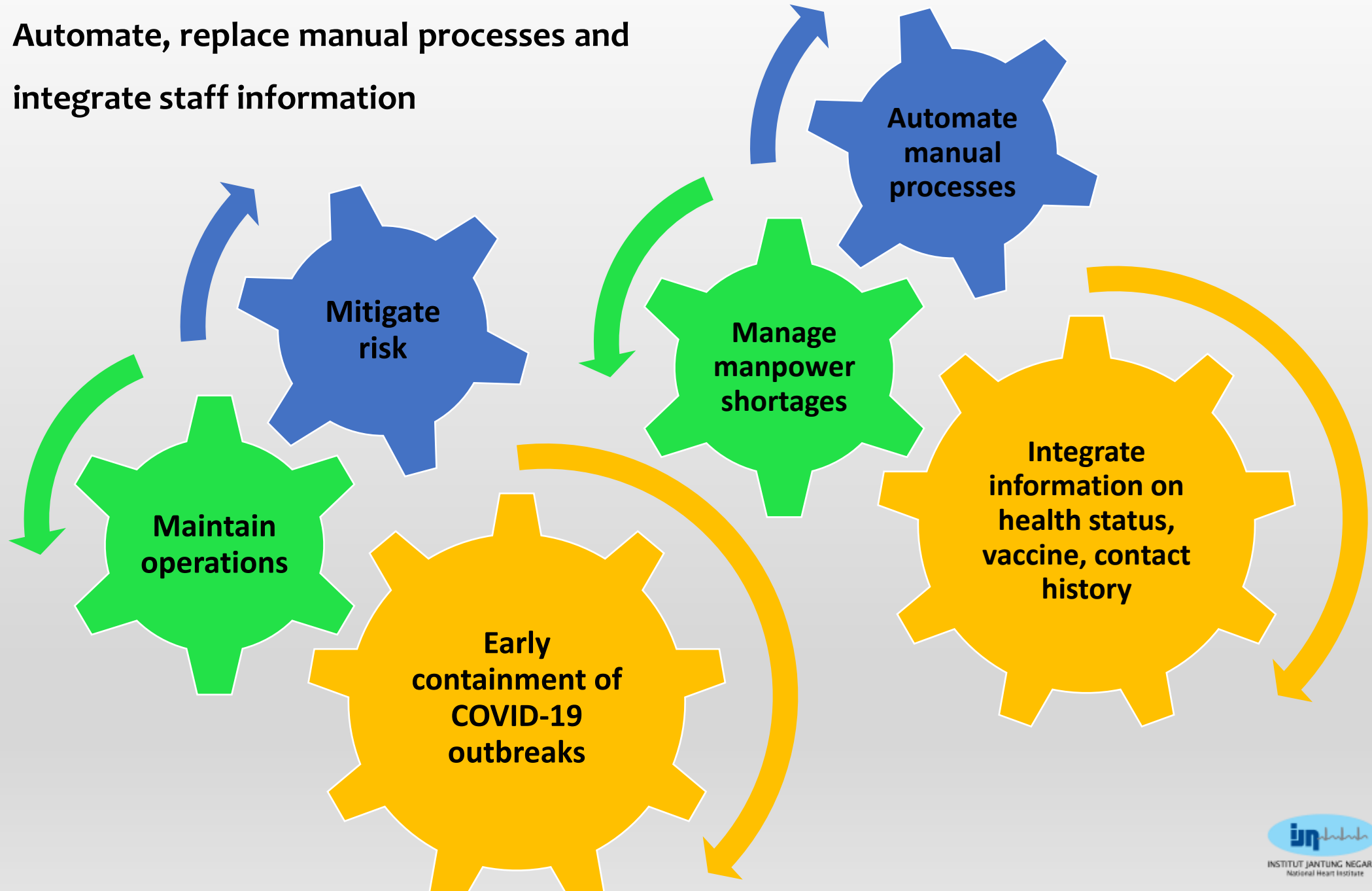
Number of staff contracting COVID-19

3

Time taken for contact tracing

GOAL

Automate, replace manual processes and integrate staff information



STRATEGIES FOR CHANGE

IJNSurveillance, a spectrum of cloud-based applications and data networks



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NATIONAL HEART INSTITUTE
IJSURVEILLANCE

PERSONAL SYMPTOMS CONSENT

For Date
27/09/2022

SURIYANI BINTI AZAMAN

ASSISTANT MANAGER
(APPLICATION) MIS
2207
MGT. INFO. SYSTEMS
0123671392

+ COVID-19 TEST

+ CLOSE CONTACT (PUS)

NEXT

CLEAR

INSTITUT JANTUNG NEGARA
NATIONAL HEART INSTITUTE
IJSURVEILLANCE

PERSONAL SYMPTOMS CONSENT

1. Do you experience any of the following symptoms?

Fever (Demam)

Chills/ Feeling cold (Seram sejuk)

Rigors / Shivers

Myalgia/ Muscle pain

Headache

Sore throat

Nausea/ Vomiting

Diarrhea



- LINK
- Dashboard
- Reports
- DATA/DATABASE
- Attendance
- EMPLOYEE HEALTH
- IJSurveillance
- WELFARE
- Vaccination
- STAFF
- Staffs
- ON-CALLINGS
- Report
- SETTING
- Setting

| ID | Full Name | Full Name | Registration Date | Temp (C) | Low Temp | High Temp | DOB | Gender | Validation Status | Presence |
|------|--------------------------------|-----------|-------------------|-------------|----------|-----------|-----|--------|-------------------|----------|
| 1020 | RAH NUR HANISA BINTI USMAN | | | 36.2 (94.0) | | | | | PV-SD | Present |
| 0922 | IRSHADIL BIN TALIB | | | | | | | | PV-SD | Present |
| 2092 | RAJU MUSTAPISAH SUN HUSSEIN | | | 36.1 (94.0) | | | | | IV | |
| 4057 | SUARBI PATRIK AN MOHD SAJDI | | | 36.6 (94.0) | | | | | PV-SD | Present |
| 0470 | DTI HANISAH BINTI HELMI | | | | | | | | PV-SD | Present |
| 0477 | SULAYMAN SUHRAI SUHRAI | | | 36.3 (94.0) | | | | | PV-SD | Present |
| 2207 | SURIYANI BINTI AZAMAN | | | 36.7 (94.0) | | | | | PV-SD | Present |
| 4714 | TRINA WENDY ANN | | | 36.1 (94.0) | | | | | PV-SD | Present |
| 1454 | TUHMANI BINTI OHAN | | | 36.3 (94.0) | | | | | PV-SD | Present |
| 0420 | WATI HAZLIZAH BINTI WAN HUSNAN | | | 36.2 (94.0) | | | | | PV-SD | Present |
| 4524 | RAEMAH BINTI HAZELAN | | | 36.3 (94.0) | | | | | PV-SD | Present |

Showing 1 to 14 of 14 entries

STRATEGIES FOR CHANGE



Automated the entire *contact tracing process* with real time dashboard monitoring



Dashboard: Confirmed Cases | Close Contact (PUS) | Reports | More..

Dashboard: Staff | Patient | Caregiver

21 (0.7%) Confirmed Case

Vaccine Status
 FVB: 19
 FV : 2
 FV : 0
 UV : 0

COVID-19 Category
 CAT 1 : 3 | FVB: 2, FV: 1
 CAT 2 : 9 | FVB: 9
 CAT 3 : 0
 CAT 4 : 0

HAT Compliance (07/08/2022)
 Compliance : 12
 Non-Compliance : 9
 Case After 2 PM : 0

0 New Case (07/08/2022)

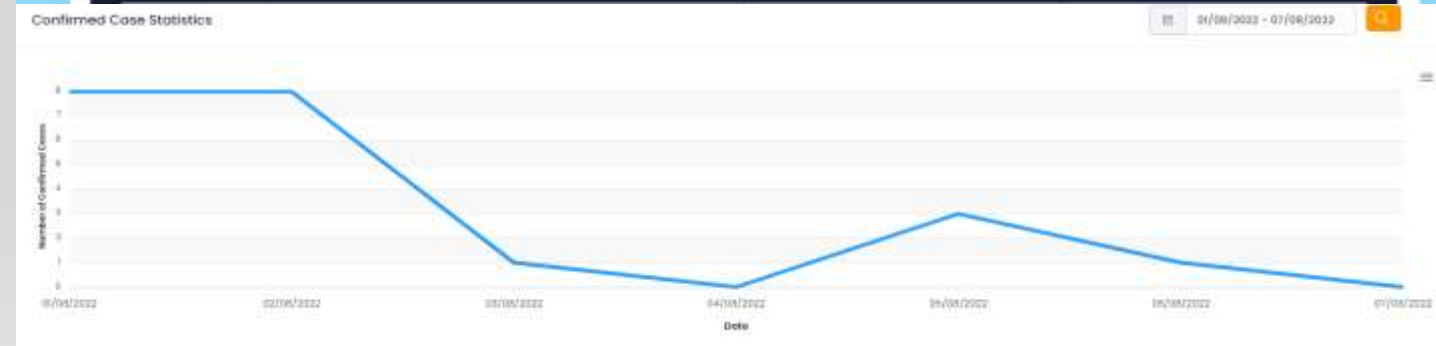
0 PUS → Confirmed Case (07/08/2022)

0 (0%) Close Contact (PUS)

HAT Compliance (07/08/2022)
 Compliance : 0
 Non-Compliance : 0

COVID-19 Test Compliance (07/08/2022)
 Compliance : 0
 Non-Compliance : 0

0 RTW (07/08/2022)



DASH Dashboard

| Submission Date | Fit Status | PUS | Type | Outcome | Self Test | Vaccination Status | Confirmed PUS | Confirmed Case | Reason |
|-----------------|------------|-----|-------------------|----------|-----------|--------------------|---------------|----------------|------------------------------|
| 2. NOT FIT | | | | | | | | | |
| | NOT FIT | | | | No | FV | | | Underlying medical condition |
| | NOT FIT | | Rapid Test Saliva | Positive | Yes | FV | | ? | |

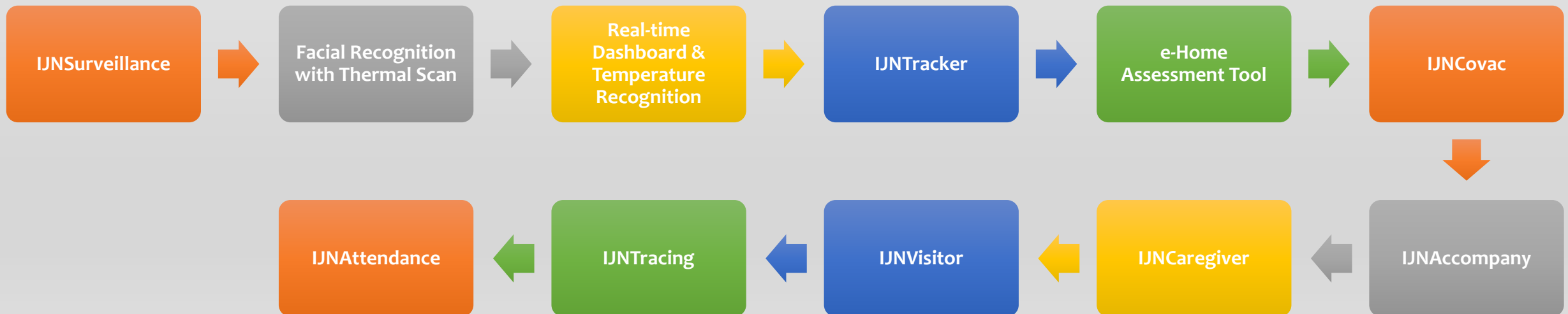
Confirmed Case

| Position | Test Date | CT Value | Source | QL Start | QL End | Verified At |
|------------------------|-----------|----------|--------------|----------|--------|-------------|
| STAFF NURSE | | | SURVEILLANCE | | | |
| NURSE MENTOR | | | SURVEILLANCE | | | |
| JUNIOR PHYSIOTHERAPIST | | | SURVEILLANCE | | | |
| SENIOR HOSPITAL AIDE | | | SURVEILLANCE | | | |

STAGES OF SYSTEM DEVELOPMENT (AGILE)



APPLICATION DEVELOPMENT ROAD MAP



ANALYSIS & INTERPRETATION



1

Staff compliance to daily health self-declaration was 53% in January 2021.



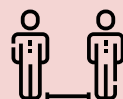
2

Number of staff contracting COVID-19 in January 2021 alone was 44.



3

150 staff redeployed to assist with contact tracing procedures.



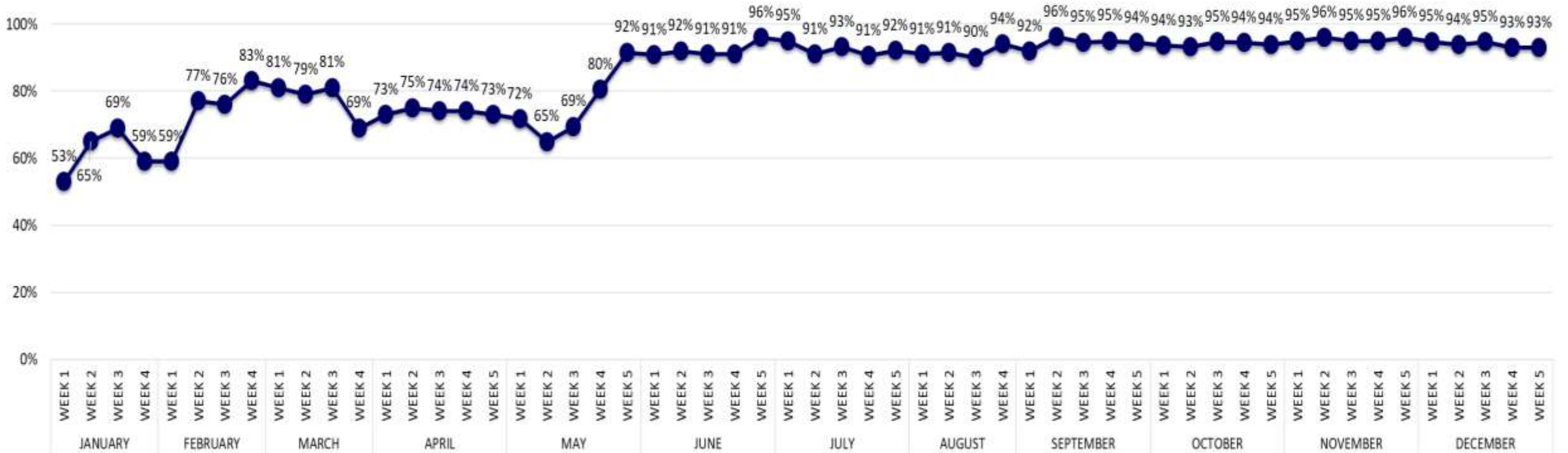
4

Contact tracing took an average of 72 hours per COVID-19 case.

EFFECT OF CHANGE

IJN Staff, N=2500

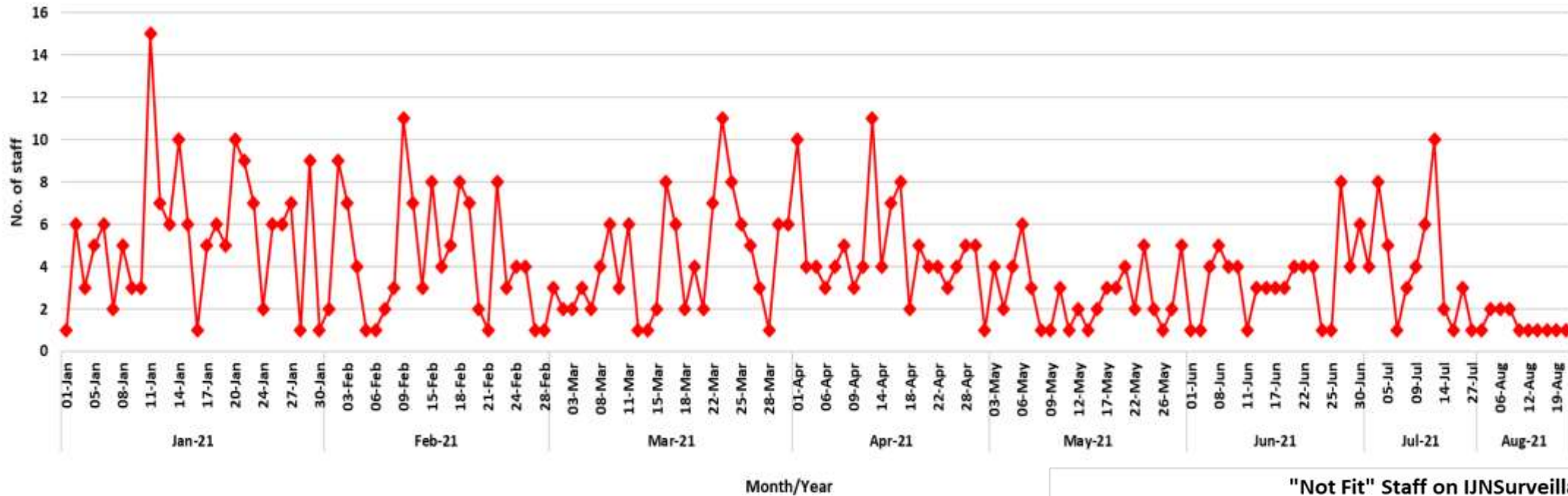
COMPLIANCE TO IJNSURVEILLANCE (1 JANUARY - 31 DECEMBER 2021)
EXCLUDING WEEKENDS



>90% compliance to daily health declaration on IJNSurveillance by staff

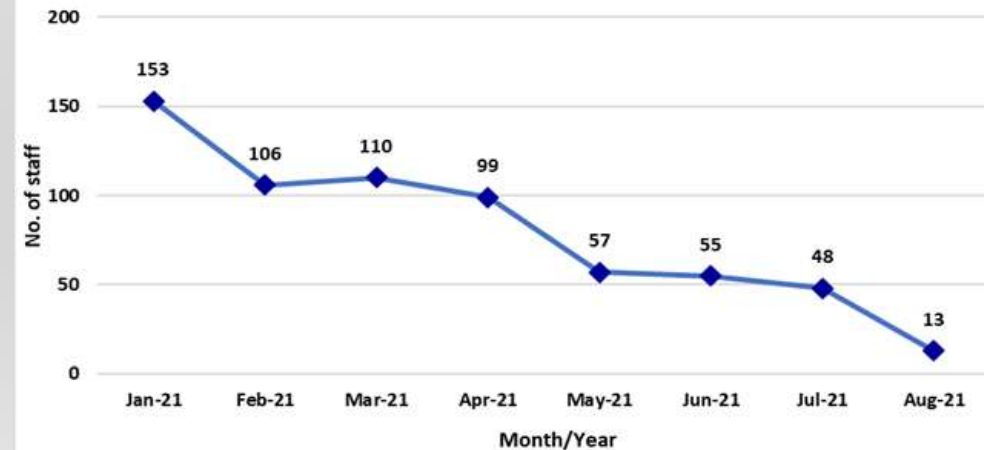
EFFECT OF CHANGE

"Not Fit" Staff by IJNSurveillance as at 31 August 2021 (Exclude weekends)



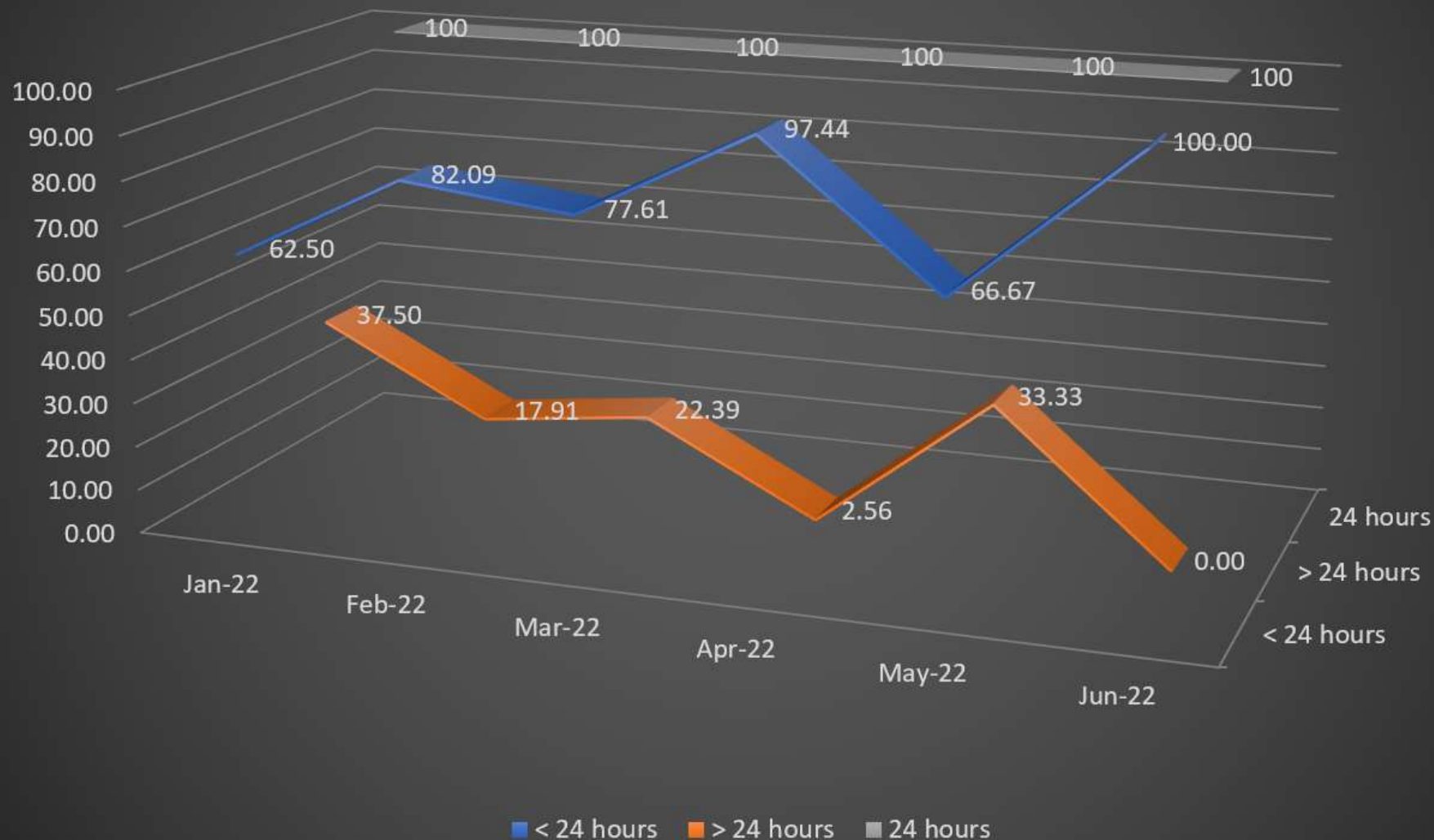
Reduction in “Not Fit” or Unwell staff present at work to less than 20 staff per month

"Not Fit" Staff on IJNSurveillance January to August 2021



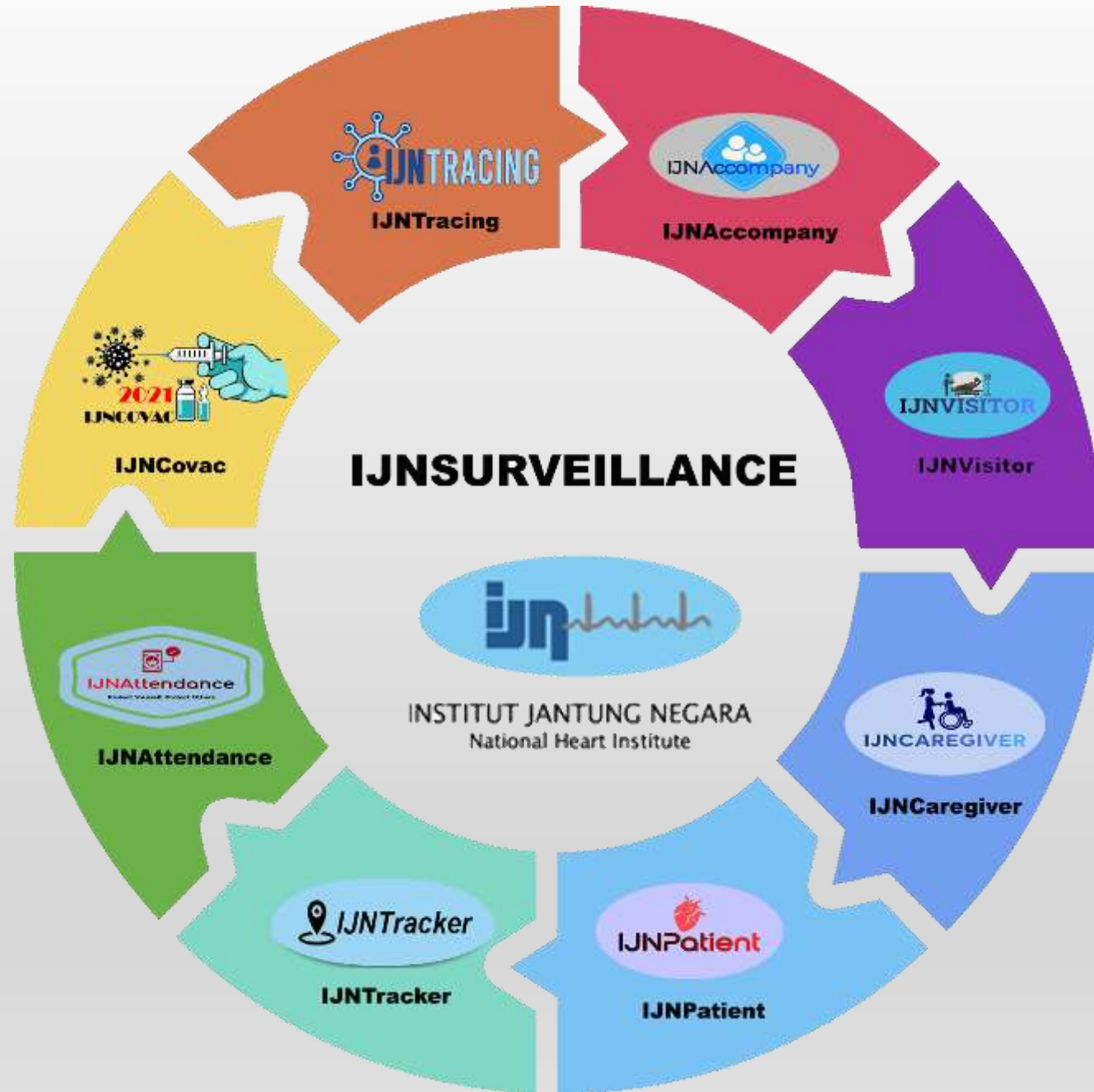
EFFECT OF CHANGE

Contact Tracing completed within 24 hours (%)



**Improved
number of
contact tracings
completed
within
24 hours**

THE NEXT STEP





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THANK YOU



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