

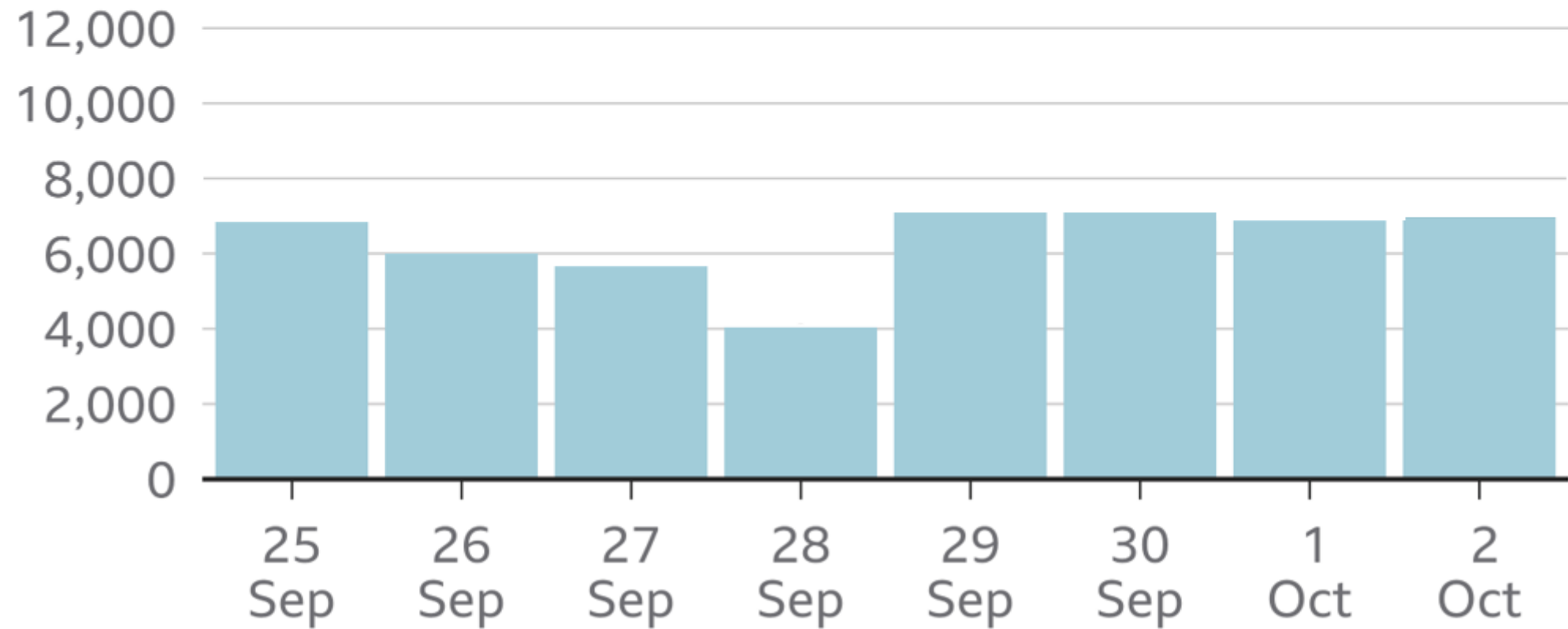
Do those numbers look right?

James Broome

Director of Engineering

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Number of new coronavirus cases by date reported



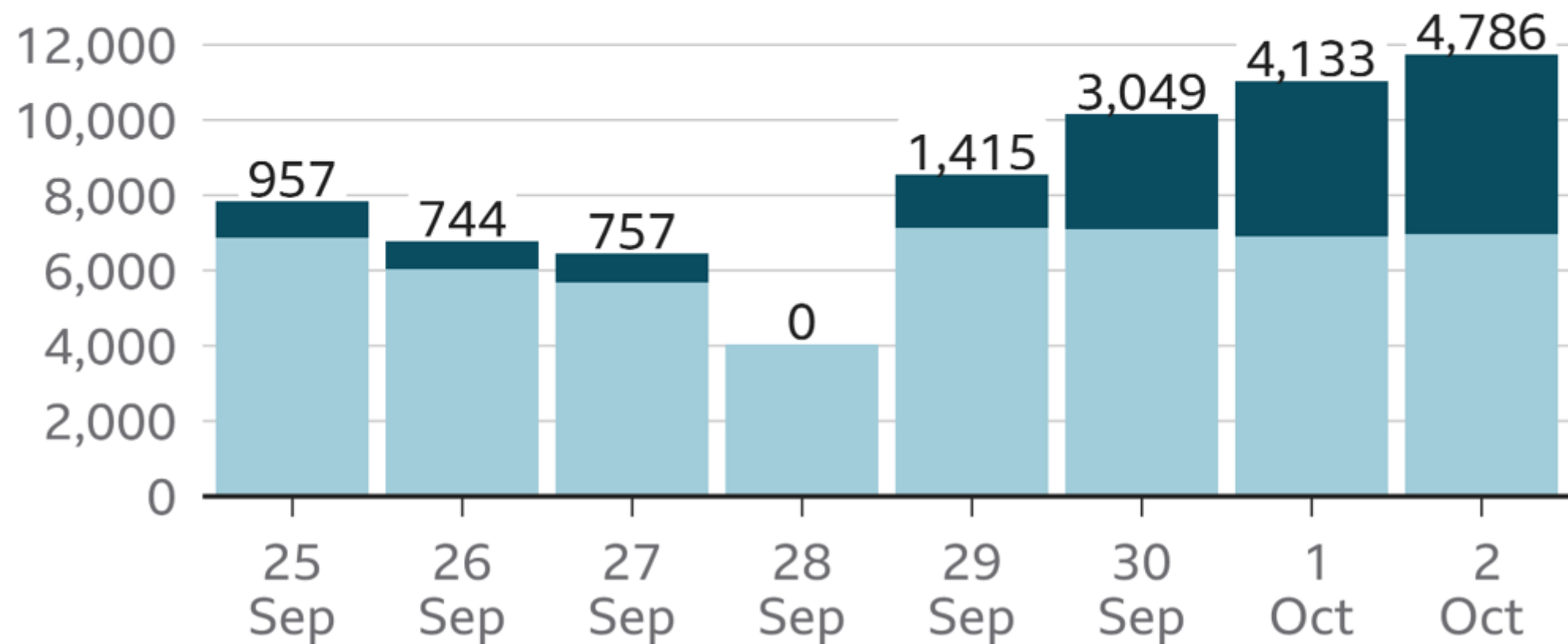
Source: Gov.uk dashboard, Public Health England

BBC

Thousands of missing coronavirus cases added after reporting problem

Number of new coronavirus cases by date reported

■ Missing cases added ■ Previously announced cases



Source: Gov.uk dashboard, Public Health England

BBC

Under-reported figures

From 25 Sept to 2 Oct

50,786

Cases initially reported by PHE

15,841

Unreported cases, missed due to IT error

8 days of incomplete data

1,980 cases per day, on average, were missed in that time

48 hours Ideal time limit for tracing contacts after positive test

Source: PHE and gov.uk 



Getty Images

The Public Health England Test and Trace Excel error could have been prevented by this one simple step

12th October 2020



By James Broome
Director of Engineering





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Excel: Why using Microsoft's tool caused Covid-19 results to be lost

By Leo Kelion
Technology desk editor

5 October 2020



Covid: how Excel may have caused loss of 16,000 test results in England

Public Health England data error blamed on limitations of Microsoft spreadsheet

- [Coronavirus - latest updates](#)
- [See all our coronavirus coverage](#)



It wasn't tested

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Pop Quiz

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Does it matter if it's wrong?

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So why don't we test?

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We don't have the time

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We don't know the answer

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It's hard

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Unit Testing



Integration Testing



User Acceptance Testing

- Isolated logic
- Stubs/mocks
- Fast feedback

- End to end
- Real integration
- Slower to test

- User interface
- Business layer
- Manual

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Unit
Testing



Integration
Testing



User Acceptance
Testing

Notebooks



Pipelines



Reports



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Demo 1

Unit Testing

Fabric notebooks

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Notebooks

1. Ad-hoc, experimental data processes
2. Agile, collaborative tool for rapid value
3. But agility comes at a cost without due care

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Notebooks

1. Notebooks contain code, which should be tested
2. Define functions for logical steps, using cells
3. Find right balance between agility and quality
4. Approach applicable to other notebook technologies

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Demo 2

Integration Testing

~~Fabric~~ Synapse Pipelines

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Pipelines

1. Takes a long time
2. Lots of data to validate

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Pipelines

1. Asynchronous polling
2. Behaviour/scenario testing
3. Snapshot testing

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Pipelines

1. Long running ETL processes can be tested using polling
2. Behaviours can be tested as well as data values
3. Snapshot testing adds regression coverage
4. Approaches applicable to other tooling/technology

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Demo 3

User Acceptance Testing

Power BI / Fabric Reports

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Power BI Reports

- 1.No official support or recommended approach
- 2.No available testing frameworks or tools
- 3.No control over the UI
- 4.No control over DAX queries that report generates
- 5.Testing tabular model only

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Power BI Reports

Feature	.NET SDK	ExecuteQueries REST API
Supported programming languages	C#/.NET	Any
Connect to Power BI Desktop	Yes	No
Connect to Power BI / Fabric service	Yes	Yes
Requires Premium workspace	Yes	No

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Power BI Reports

1. Tabular model is a database
2. Schema, transformations, expressions can be tested
3. Different options - .NET SDK / REST API
4. Different options have different implications

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Testing Power BI Reports with the ExecuteQueries REST API

14th January 2022



By James Broome
Director of Engineering

Testing Power BI

Read more in this Series:

[Dataflows and the Common Data Model](#)

[Testing Power BI Reports with SpecFlow](#)

[Testing Power BI Reports with the ExecuteQueries REST API](#)



There's always a way to test something

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Does it matter if it's wrong?

Then you need to prove it's right

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