Case Study:

Improving UTI diagnosis by introducing a UTI triage and clean catch MSU process

Health Board:

Cardiff and Vale PCIC Board (The Primary, Community and Intermediate Care Clinical Board)

Location:

Highlight Park Practice, Barry

Project Leads:

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Project Sponsors:

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GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Caerdydd a'r Fro
Cardiff and Vale University Health Board

Forte Medical
The specimen collection company

Practice Overview - Highlight Park Practice

- One of 7 GP practices in Barry
- Practice Population of 7,186
- Total population of Barry 57,000
- Situated in the north of the town

UTI Program Improvement Objectives:

- To reduce unnecessary prescribing
- To improve the quality urine sampling and remove asymptomatic bacteria
- To reduce over-ordering of diagnostic cultures
- To improve patient experience and outcome in relation to diagnosis of UTI

Urinary tract infection (UTI) is one of the most common indications in the community setting for which antimicrobials are prescribed. Patients are frequently screened, some would say over-screened, by means of obtaining urine cultures when not clinically indicated during the nurse or GP appointment because of the presence of asymptomatic bacteriuria.

Patient specimens can be contaminated during the collection process, this could be due to a combination of unhygienic handling, the use of non-sterile containers and the elapsed time from the specimen being collected to being decanted into a sterile container with preservative.

What currently happens:

- Patients with signs or symptoms of suspected UTI are treated on-site or have a antimicrobial prescription provided following telephone consultation
- Patients would bring urine sample to the surgery
- The specimen age was unknown / not recorded
- Nonsterile containers were being used by patients
- Specimens unlikely to be clean catch or MSU
- High number of urine specimens were decanted following dip and sent for culture

Improvement programme methods:

- All patients that call or present with signs or symptoms of suspected UTI were triaged using the UTI triage form
- Patients that were required to provide a urine sample, were invited to the practice where the sample was provided using the Peezy device
- Patients arriving with samples already collected outside of the surgery were required to provide a fresh sample using the Peezy prior to their consultation with the ANP or GP
- If the triage algorithm indicated a culture was required, the patient would provide a urine specimen using a Peezy device with a universal tube containing boric acid (PE41)
- If the triage algorithm indicated the specimen should be dipped first, the patient would provide a urine specimen using a Peezy device with a non-boric universal tube (PE40)
- In both instances the time the sample was provided by the patient was recorded
- Triage clinics were timed where possible to align with transport to the laboratory to ensure specimens were analysed promptly

Improvements Achieved:

- Practice staff were able to better assess and confirm the appropriateness of treatment
- Practice staff were able to better asses patient dip tests in the absence of symptoms to identify the likelihood of asymptomatic bacteria
- Practice staff were more confident pausing antimicrobial prescribing whilst awaiting the results from laboratory cultures or microscopy
- Practice staff identified improved workflows
- Patient hygiene was improved using the Peezy
- The Peezy device removes handling issues, urine splashback and spills
- The laboratory was able to measure the true elapsed time from specimen collection to analysis
- Practice staff identified that certain patients with a history of recurrent, chronic and complicated conditions were correctly diagnosed improving treatment outcomes

Results and Evidence:

During the 6 months between March and July 2019, patients used the Peezy device to provide a urine sample for testing as part of the UTI triage process, a total of 41 patient samples were sent to the laboratory for culture and further investigation. We compared this to the same period in 2018, when Peezy was not being utilised, a total of 119 patient specimens were sent to the laboratory for the same period.

Between March and July 2019 using the Peezy as part of the UTI triage process delivered a 66% improvement from the same period in 2018.

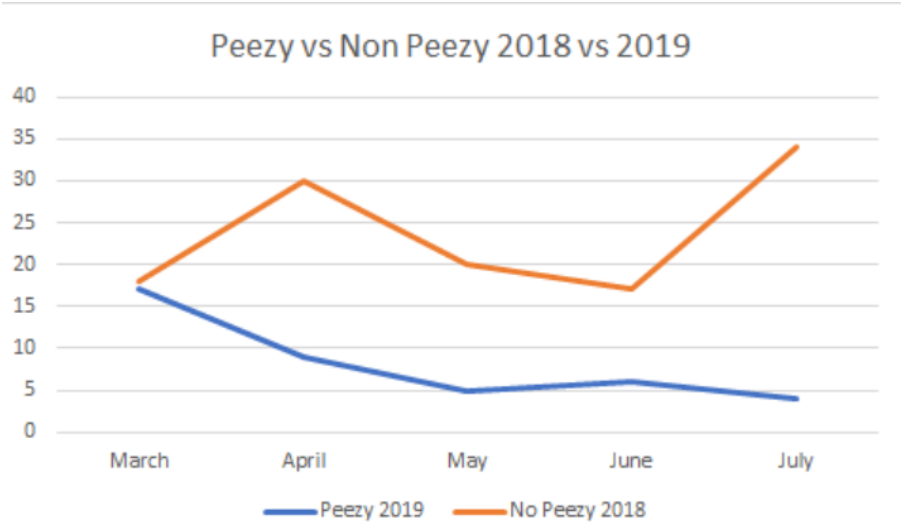


Table 1 – Comparison of specimens sent to the lab between 2018 (non Peezy) and 2019 (with Peezy)

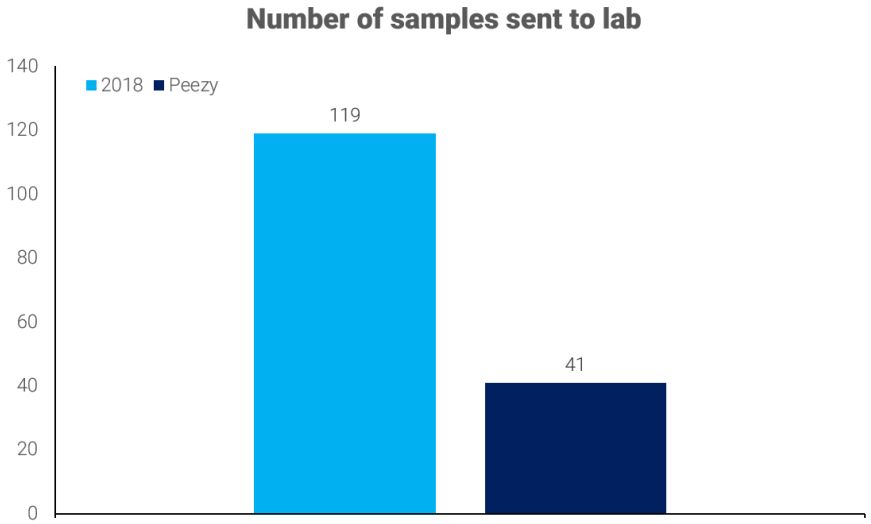


Table 2 – Comparison of specimens sent to the lab between 2018 (non Peezy) and 2019 (with Peezy)

Clinical and Economic Improvement:

Sending samples to the lab is expensive; at £7.50 per sample it is vital to reduce the number sent unnecessarily to the lab. During the trial, Peezy reduced the number of samples sent to the lab from 119 in 2018 to 41 in 2019 a reduction of 78, which corresponds to a £585 saving, equivalent to £1404 per year for the Highlight Park practice in isolation.

The economic upside covers the cost of the Peezy device and generates a real money saving over the existing methods.

Laboratory results demonstrated improvements in culture outcomes, mixed growths, mixed growths with pathogens, no growths, pure growths all improved during the trial, importantly no specimens were rejected during the trial.

In 2018, 14% of samples contained a mixed growth (8% + 6%). During the same period in 2019 using the Peezy, there were 0 mixed growths.

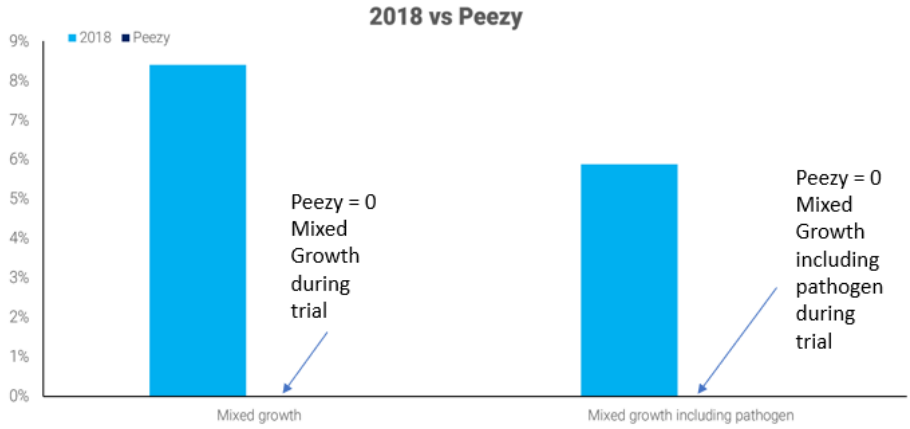
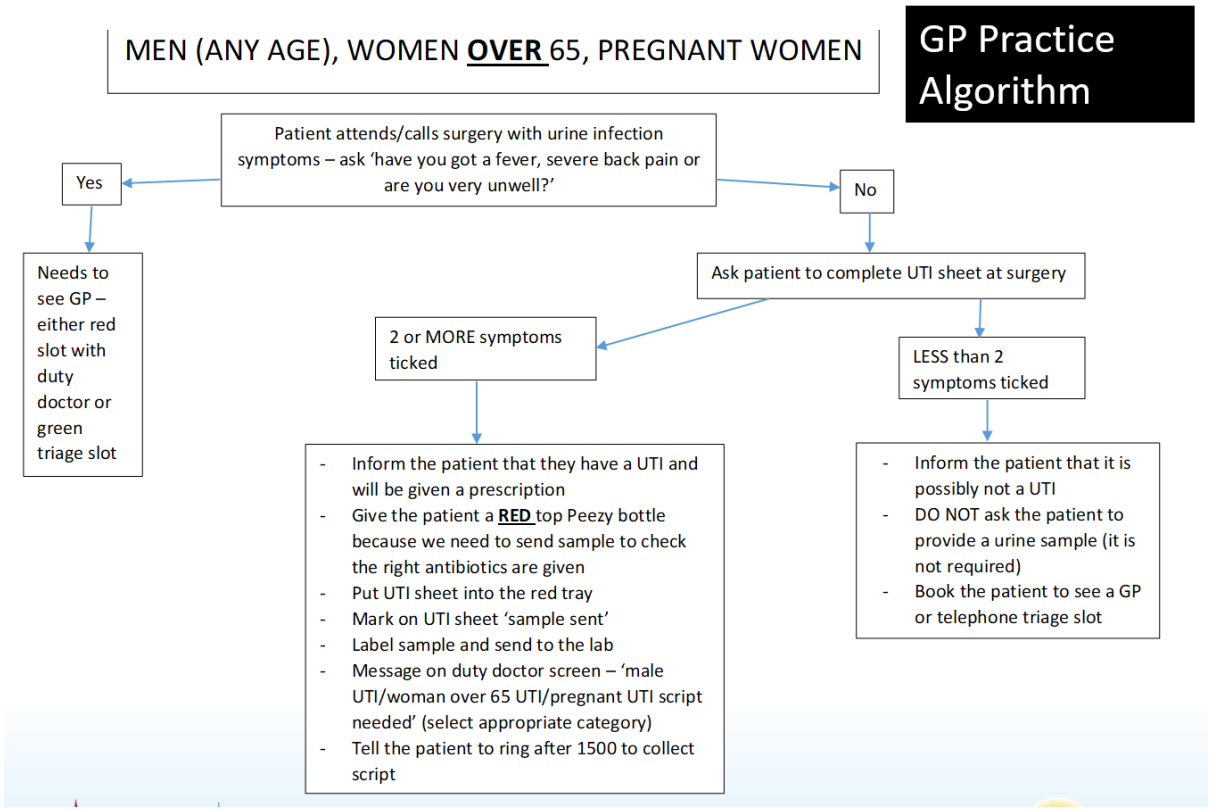
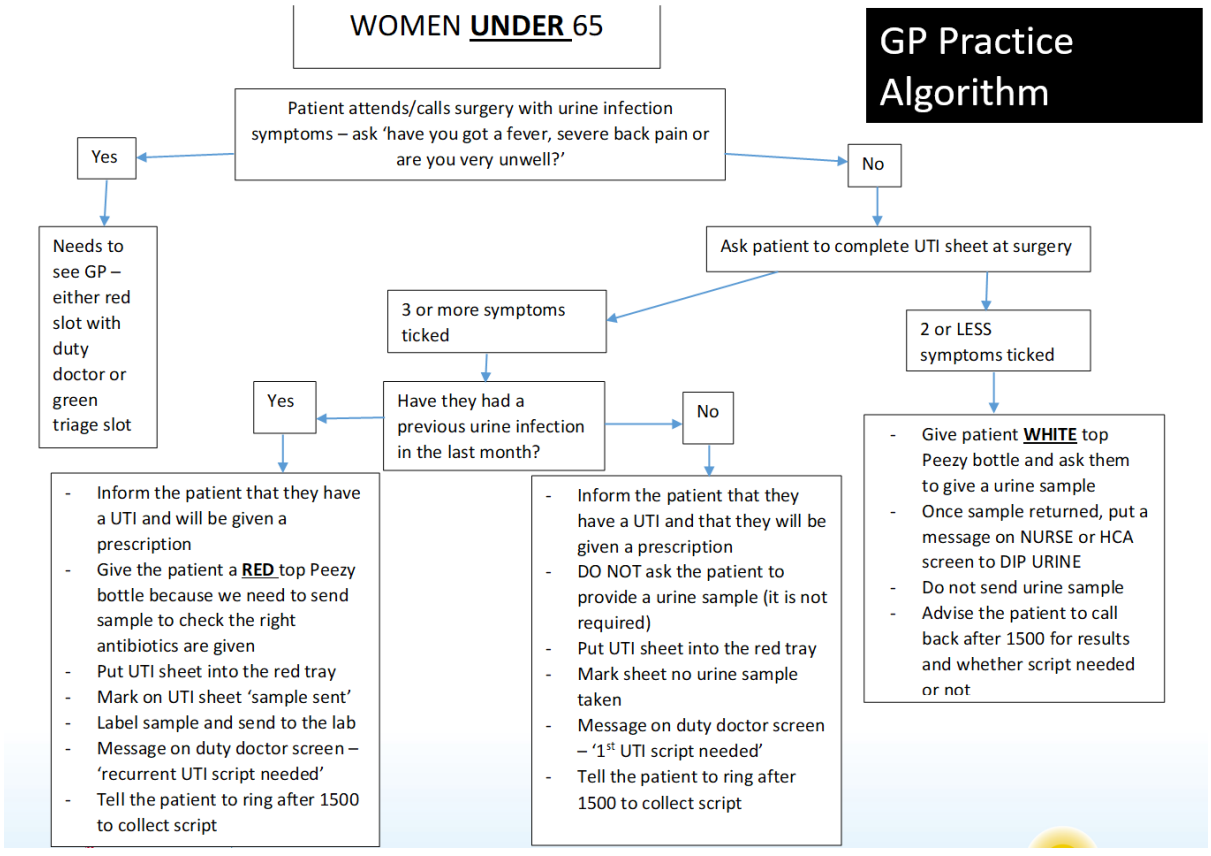


Table 3 – Percentage of mixed growths identified in 2018 and the same period in 2019 using Peezy.

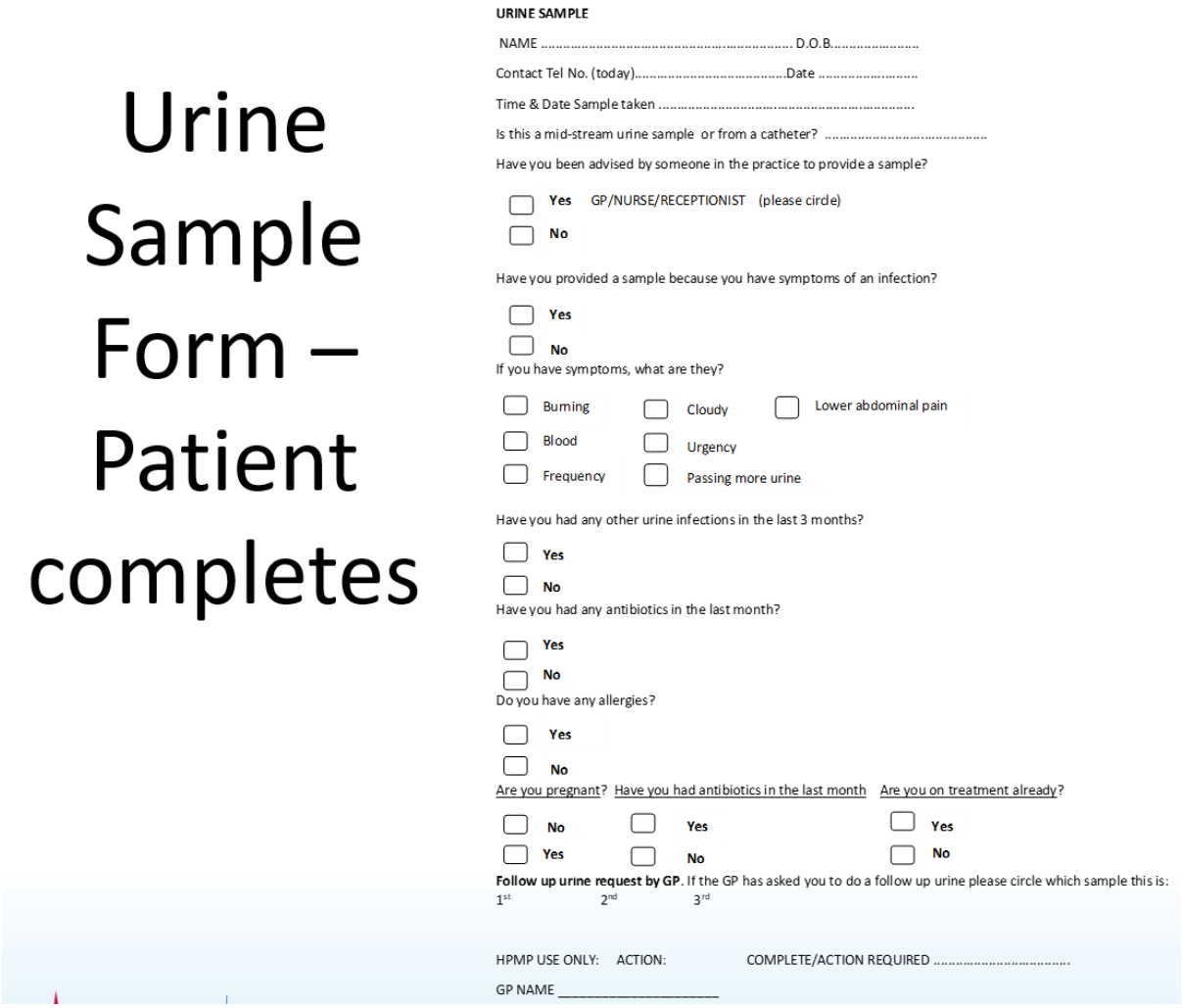
Suspected UTI Treatment Management algorithms:





UTI Patient Triage Form:

Urine Sample Form – Patient completes



URINE SAMPLE

NAME ..... D.O.B.....

Contact Tel No. (today).....Date .....

Time & Date Sample taken .....

Is this a mid-stream urine sample or from a catheter? .....

Have you been advised by someone in the practice to provide a sample?

☐ **Yes** GP/NURSE/RECEPTIONIST (please circle)

☐ **No**

Have you provided a sample because you have symptoms of an infection?

☐ **Yes**

☐ **No**

If you have symptoms, what are they?

☐ Burning ☐ Cloudy ☐ Lower abdominal pain

☐ Blood ☐ Urgency

☐ Frequency ☐ Passing more urine

Have you had any other urine infections in the last 3 months?

☐ **Yes**

☐ **No**

Have you had any antibiotics in the last month?

☐ **Yes**

☐ **No**

Do you have any allergies?

☐ **Yes**

☐ **No**

Are you pregnant? Have you had antibiotics in the last month Are you on treatment already?

☐ **No** ☐ **Yes** ☐ **Yes**

☐ **Yes** ☐ **No** ☐ **No**

Follow up urine request by GP. If the GP has asked you to do a follow up urine please circle which sample this is:

1st 2nd 3rd

HPMP USE ONLY: ACTION: COMPLETE/ACTION REQUIRED .....

GP NAME _____

Feedback provided by project lead Heather Crowley:

Using the Peezy device in clinical practice has allowed us to completely transform how we approach caring for patients presenting with UTI symptoms. Care is now streamlined, avoiding the need for repeat samples and avoiding mixed growth culture results; meaning antibiotic prescriptions are far more appropriate. As a surgery it has allowed us to empower the non-clinical team to provide patients with clear and concise information at their first point of contact with the surgery. The advice given to patients is consistent due to the use of algorithms and scripts, and coupled with the Peezy device, has improved patient care dramatically. From a clinical perspective we have seen the number of prescriptions for antibiotics reduce as well as the number of mixed growth culture results; we are able to get the best outcomes for our patients in the quickest and safest manner.