



Peezy Midstream

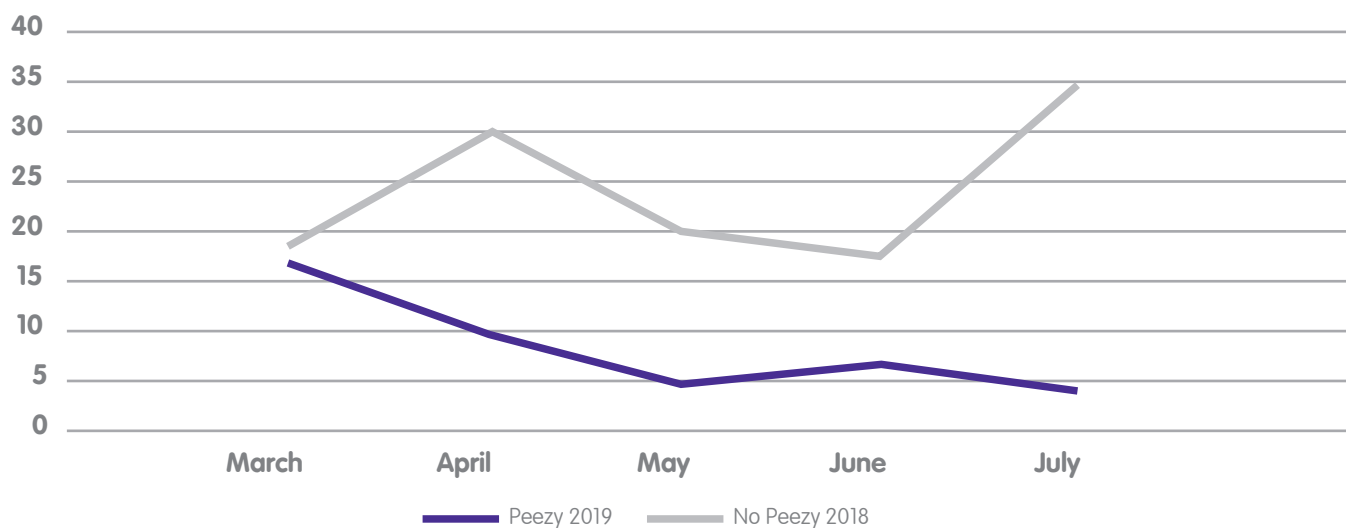
Clinical Evidence Summary

Improving UTI diagnosis by introducing a UTI triage and clean catch MSU process¹

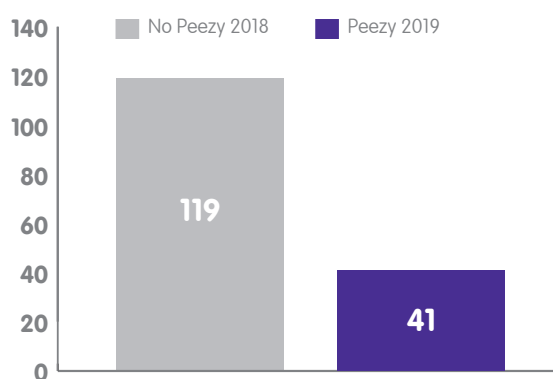
During the five months between March and July 2019, patients used Peezy Midstream to provide a urine sample for testing as part of the UTI triage process, a total of 41 patient samples were sent to the laboratory for culture and further investigation. This was compared to the same period in 2018, when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

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

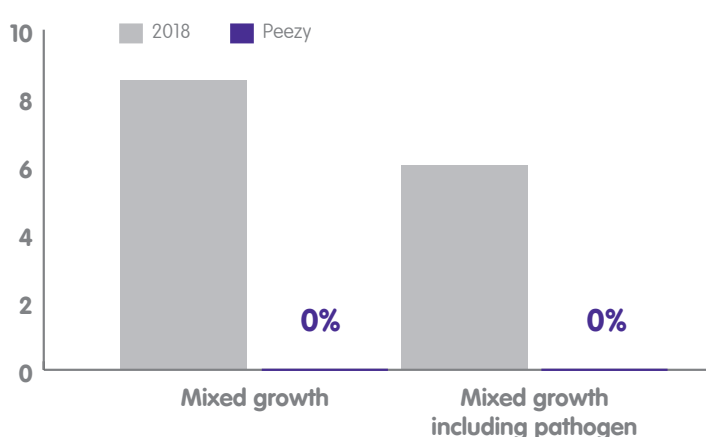
Peezy vs Non Peezy 2018 vs 2019



Number of samples sent to the lab



2018 vs Peezy



The trial successfully reduced the number of urine samples sent to the lab for further analysis resulting in a 66% decrease in spend on lab services. It also reduced to 0 the number of samples that needed to be repeated due to mixed growth/contamination.

"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... 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."

Heather Crowley, Advanced Nurse Practitioner, Highlight Park Practice

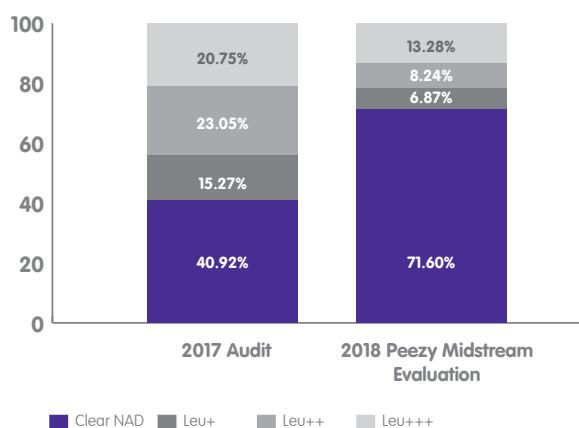
Midwifery back-to-basics: auditing urinalysis in practice²

Two audits were conducted over two years to help the maternity unit to consider how they might enhance their urine screening service. The first audit aimed to review how many urine samples were being sent to the laboratory for culture and sensitivity, the outcomes of these investigations and the costs that this incurred at one maternity service antenatal clinic and maternity day assessment unit. The second audit aimed to review a new system of urine collection and how this impacted on the urinalysis screening false-positives for contamination and to assess the costs of introducing a new urine collection system across maternity service clinics.

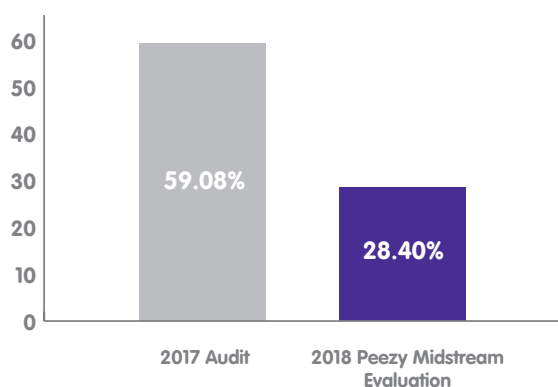
Total	Clear (NAD)	Leu +	Leu ++	Leu +++	Leu Total	Peezy Midstream @ £0.87	UC (White top) @£0.059	COMBI test strip @ £0.16	Boric UC (red top) @£0.053	Lab cost @£6.97	Total Cost	Average Cost per Patient
2017 Audit												
347	142	53	80	72	205	£0.00	£20.47	£55.52	£10.87	£1,428.85	£1,515.71	£4.37
2018 Peezy Evaluation												
655	469	45	54	87	186	£569.85	£0.00	£104.80	£9.86	£1,296.42	£1,980.93	£3.02

Cost Reduction Using Peezy Midstream	30.8%
Average Monthly Patients	501
Average Yearly Patients	6,012
Average Saving Per Patient	£1.34
Average Yearly Saving in Maternity	£8,078.43

2017 Audit Vs 2018 Peezy Evaluation



% of Urines Sent for Additional Lab Analysis



Introducing Peezy Midstream had a significant effect on the number of false positive leucocyte dip stick results, showing more clear no abnormality detected (NAD) results and therefore reducing the number of samples sent off for culture.

“Reviewing the findings of both audits it can be surmised that using a clean collection system reduced the false-positive results of urinalysis and also reduces the costs of unnecessary laboratory testing. Also the Peezy system offers a more efficient and user-friendly unit to aid appropriate sample collection and was found to be valued by staff and service-users alike.”

Sylvia Bone, Patient Safety Midwife, West Hertfordshire NHS Trust

A Cross-sectional Pilot Cohort Study Comparing Standard Urine collection to the Peezy Midstream Device for Research Studies Involving Women³

Loyola University Chicago.

This 3 cohort study involving 62 women aimed to compare the microbial abundance and diversity of voided urines using standard urine collection techniques or using Peezy Midstream versus paired periurethral specimens using the expanded quantitative urine culture (EQUC). One cohort used the standard clean catch urine collection protocol in addition to a castile soap wipe, cohort two used Peezy Midstream in addition to a castile soap wipe, and the third cohort used Peezy Midstream without a castile soap wipe. Prior to urine sample collection, a periurethral swab was collected from each participant to measure periurethral microbial abundance.

The results of the collection methods were then analysed against and compared against the periurethral swabs for species abundance, richness and diversity. Peezy urine specimens differed significantly from the periurethral swabs and had significantly reduced colony-forming units, in contrast with the standard urine collection method which had a higher abundance and richness.

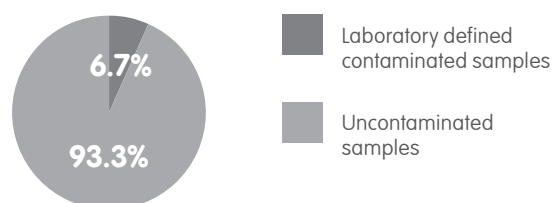
The study concluded that using Peezy Midstream, with or without a castile soap wipe, resulted in urine specimens with lower bacterial abundance that was distinct from the periurethral, and that Peezy Midstream may reduce post bladder microbial contribution by minimising the capturing of microbes from the vagina, vulva and surrounding skin.

Midstream Urine in Obstetrics: Improving Diagnostic Accuracy⁴

Royal Surrey County Hospital 
NHS Foundation Trust

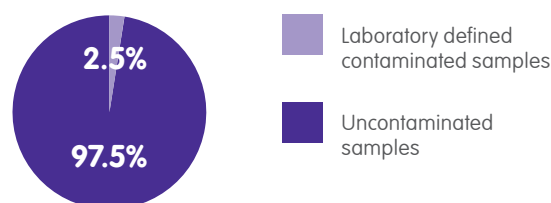
Retrospective audit in maternity to determine the effectiveness of Peezy Midstream in reducing false-positive dip stick results, and reduce reports of mixed growth/contaminated urine samples by the lab.

Audit results



- **5%** positive culture rate
 - = **95.5%** false positive rate and **treated unnecessarily**
 - = **£25,847/year** spent on contaminated dipstick samples
- = **£2,088/year** spent on laboratory defined contaminated samples

Peezy study results



- A reduction in laboratory contamination to **2.5%**
- **70%** found the Peezy user friendly

Conclusion

Reduction in laboratory defined contamination rate using the Peezy PE50 device has been shown. There is scope for using Peezy to reduce false positive dip tests in initial urine collection but further studies need to be conducted. There is potential for further use of Peezy in collecting all future obstetric MSUs as it improves diagnostic accuracy and is cost-effective.

Urine sample contamination rates quality improvement audit⁵

"We have used Peezy Midstream with patients in clinic. Comparison with historical specimen results show that it collects a better specimen with lower contamination, which means fewer repeats. Patients are happy with the hygiene because urine goes into the tube and not on their hands. The lab is happy to receive a proper MSU in a clean tube that fits their analysers. The system delivers accuracy, efficiency and hygiene for all parties."

Professor Frank Chinegwundoh MBE, Consultant Urological Surgeon, Barts Health NHS Trust

2016 Barts Health NHS Trust Quality Improvement Audit	Historical	Peezy
Historic comparison of urine contamination data	Percentage	Percentage
Flow Cytometry indicates no culture needed	38.8%	77.3%
Heavy mixed growth	7.1%	0.0%
Profuse mixed growth	3.8%	1.5%
Moderate mixed growth	6.5%	0.0%
No significant growth	14.0%	4.6%
No growth	7.6%	15.2%
Urine cultured and yielded a significant result	22.7%	1.5%
Average contaminated sample rate (heavy, profuse and moderate mixed growth)	17.4%	1.5%

Usability Study⁶

NHS National Institute for Health Research 2017

100%

Instructions clearly explain how to use the device

94%

Peezy collects midstream easily

94%

Patients confident using Peezy

88%

Needed no further instruction with using the device

88%

Would be comfortable using the device again

70%

Would recommend this device is used in future

About Forte Medical

Forte Medical was founded in 2006 to realise the invention of British Primary Care Doctor, Forensic Physician and medical author Dr Vincent Forte. The company is a HealthTech R&D hub, specialising in product design, development and commercialisation of specimen collection devices through strategic partnerships.

Peezy Midstream is produced and patented by Forte Medical.

References

1. Heather Crowley et al., "Improving UTI diagnosis by introducing a UTI triage and clean catch MSU process", Cardiff and Vale University Health Board. Awaiting publication, data on file, 2019.
2. Sylvia Bone, "Midwifery back-to-basics: auditing urinalysis in practice", <https://www.all4maternity.com/midwifery-back-to-basics-auditing-urinalysis-in-practice/>, 2019.
3. Elizabeth Southworth et al. "A Cross-sectional Pilot Cohort Study Comparing Standard Urine Collection to the Peezy Midstream Device for Research Studies Involving Women", 2019.
4. Michelle Jie et al. "Midstream Urine in Obstetrics: Improving Diagnostic Accuracy", Royal College of Obstetricians and Gynaecologists World Congress, 2018.
5. Frank Chinegwundoh, Urine Sample Contamination Rates Quality Improvement Audit, Barts Health NHS Trust, data on file, 2015.
6. Joe Edwards, NHS National Institute for Health Research / Trauma Management Healthcare Technology Co-operative, "Peezy Midstream Urine (MSU) Usability Study", 2015.

