

AS-410M IN A ROUTINE LABORATORY

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AGENDA

- SHORT PRESENTATION AND SOME STATISTICS
- A ROBOT – WHAT CAN IT DO?
 - WHY DID WE GET IT
- IMPLEMENTATION
 - THE WORKFLOW
 - PRODUCTION
- PROS AND CONS



WHO ARE WE

CONTACT



Region of
Southern Denmark

SYDANSK
UNIVERSITET

ODENSE UNIVERSITY HOSPITAL, OUH UNIVERSITY OF SOUTHERN DENMARK, SDU

IMPROVING HEALTH CARE TOGETHER

OUH
Odense University Hospital
Svendborg Hospital
- Striving for quality

OUH

Budget per year (million €):	835
Employees:	11.281
Beds:	1.038
Operations per year:	40.113
Discharged patients per year:	104.229
Outpatient visits per year:	1.130.729

DEPARTMENT OF PATHOLOGY

- LABORATORY WITH 5 SPECIALTIES
 - HISTOLOGY, CYTOLOGY, MOLECULAR PATHOLOGY, CYTOGENETIC, FLOW CYTOMETRY

Establishment 2023	
Job title	Total
Medical staff	38
Medical laboratory Technologist	90
- In histology	50
Medical secretaries	10
Others	12
Standardization total	150

DEPARTMENT OF PATHOLOGY

- STATISTIC OF THE YEAR (NUMBER OF REQUISITIONS)

Year	Histology	Cytology	Molecular pathology	Cytogenetic	Flow cytometry	Electron microscopy
2020	57.961	11.038	4.993	3.631	5.160	758
2021	59.157	10.760	5.607	3.870	5.474	842
2022	60.498	10.758	5.343	3.481	5.224	708

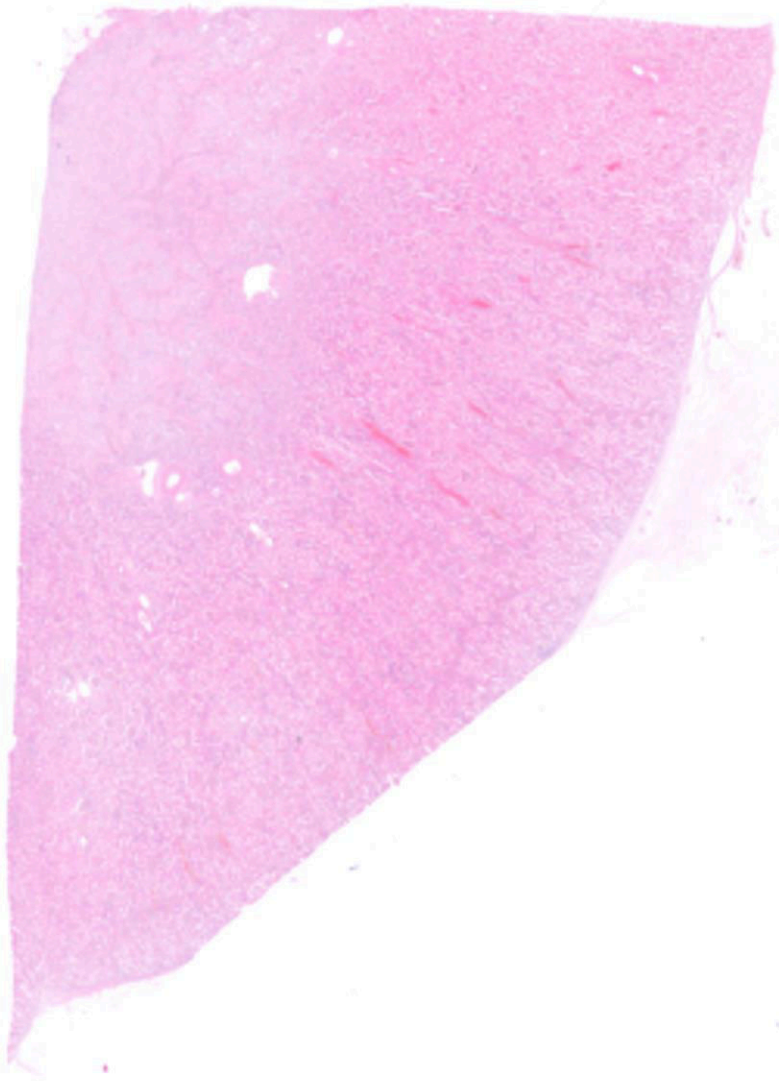
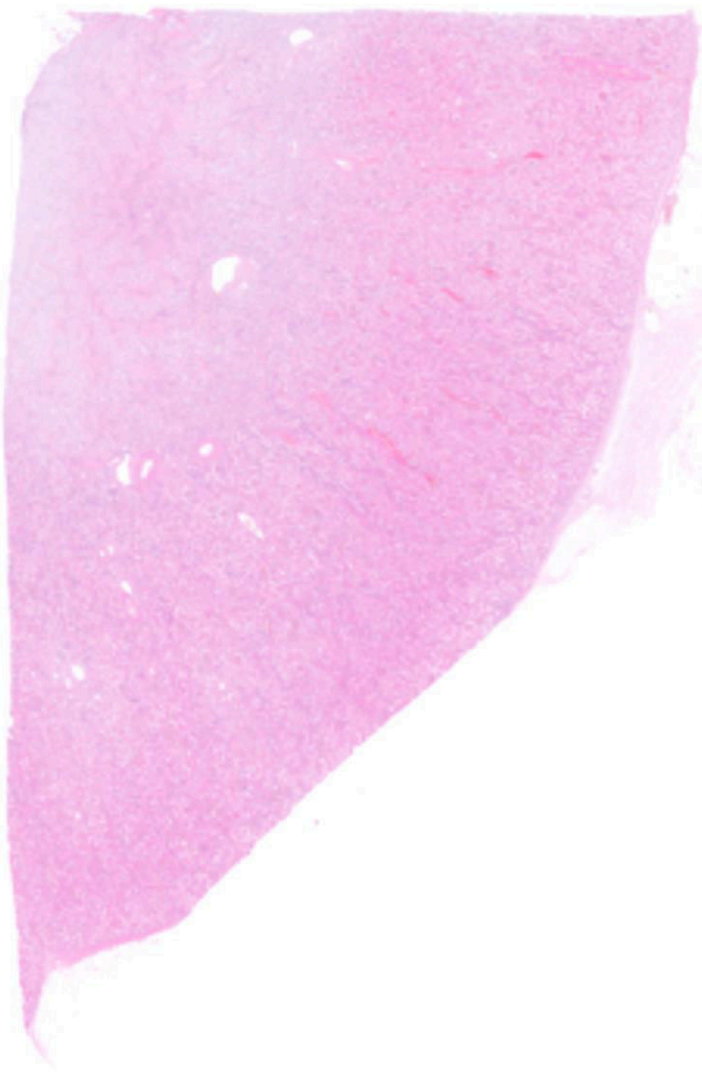
- STAININGS

Year	Blocks	Special staining	Immunostainings	Autopsies	Frozen material	HE-slides
2020	223.950	33.133	120.577	4.575	2.372	247.163
2021	229.855	34.224	129.129	4.402	2.406	249.997
2022	225.056	33.660	125.369	3.074	2.685	245.064

THE AS-410M AUTOMATED SECTIONS

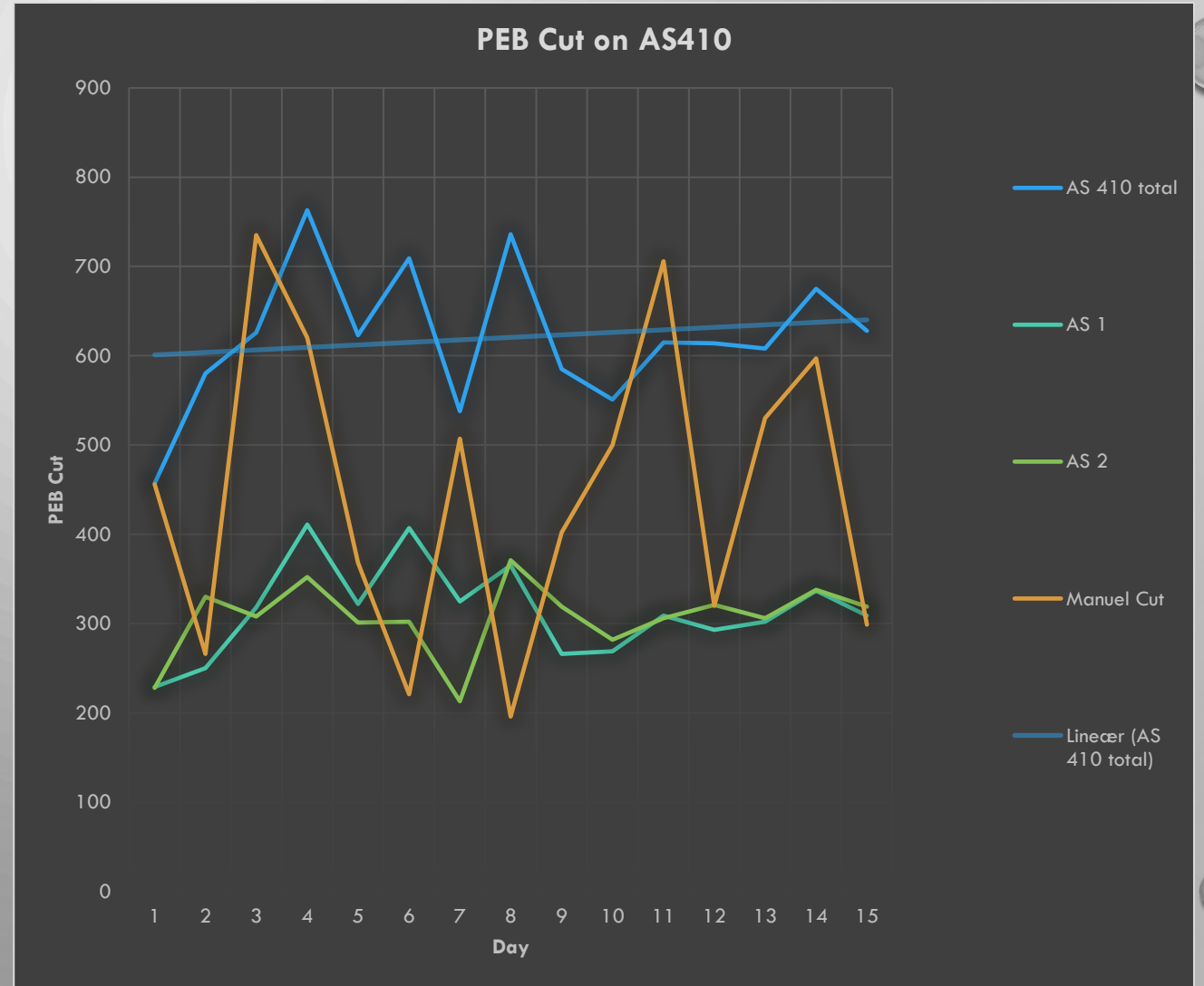
- SECTION ALL TYPES OF SPECIMEN
- SECTION WHILE THE LAB IS CLOSED
- SECTION UP TO 96 BLOCKS ON ONE RUN
 - CAPACITY - 400 SLIDES
- DIFFERENT PROTOCOLS
- CONSISTENCE QUALITY
- SAME POSITION ON THE SLIDE





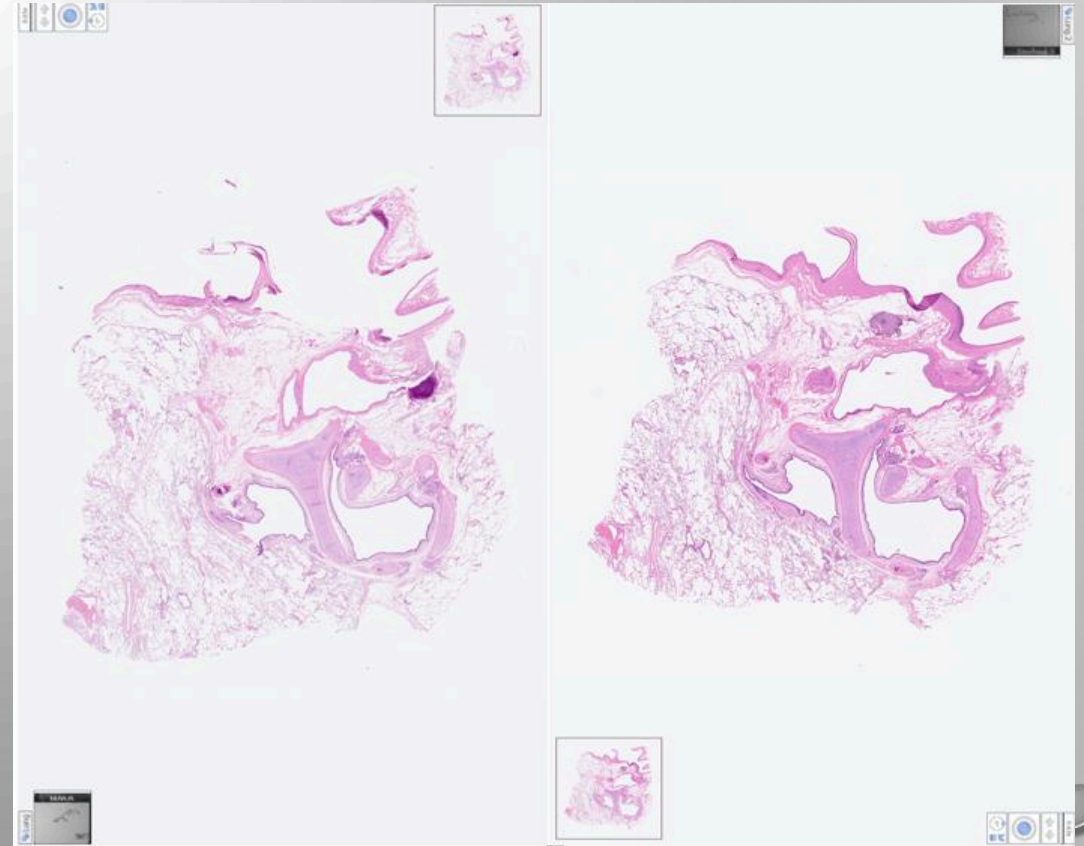
WHY DID WE GET IT?

- LACK OF STAFF
- PROBLEMS TO GET THE PRODUCTION DONE
 - AROUND 1.000 – 1.200 BLOCK PR. DAY
- THE WISH OF A CONSISTENCE PRODUCTION
- TO IMPROVE OUR QUALITY – GETTING FULLY DIGITAL
- TO IMPROVE THE HEAVILY WORKLOAD ON TECHNOLOGIST

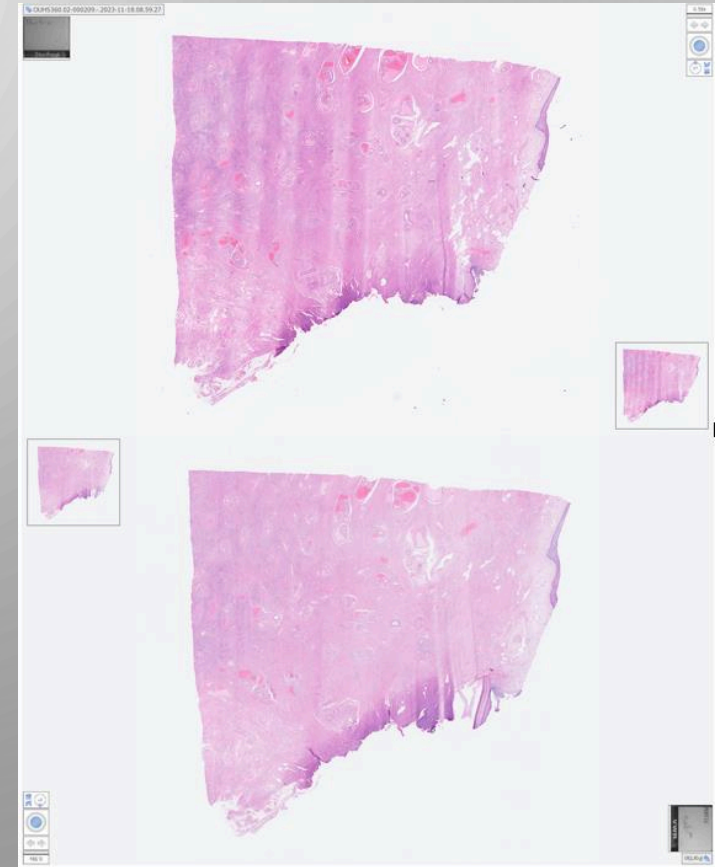
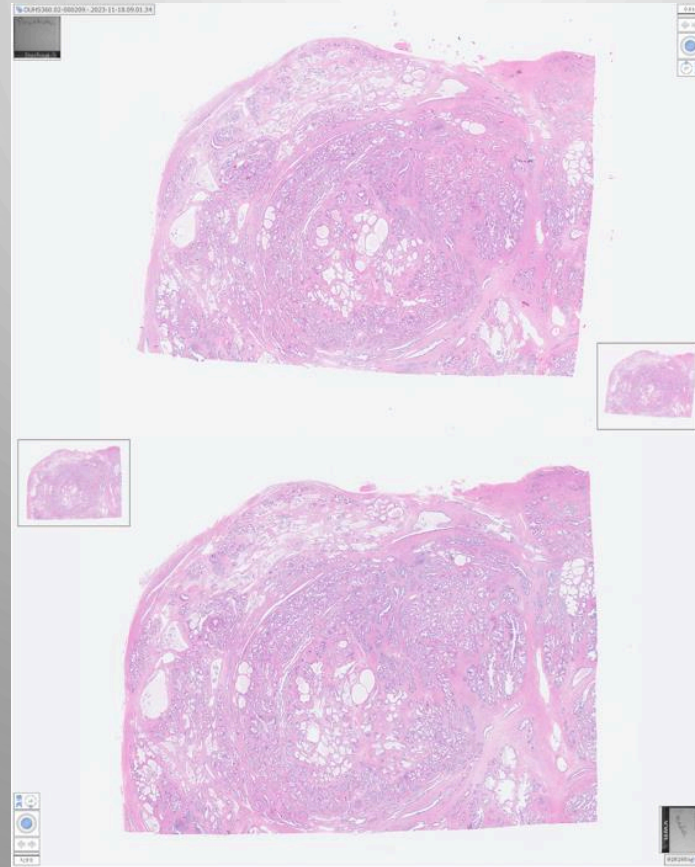
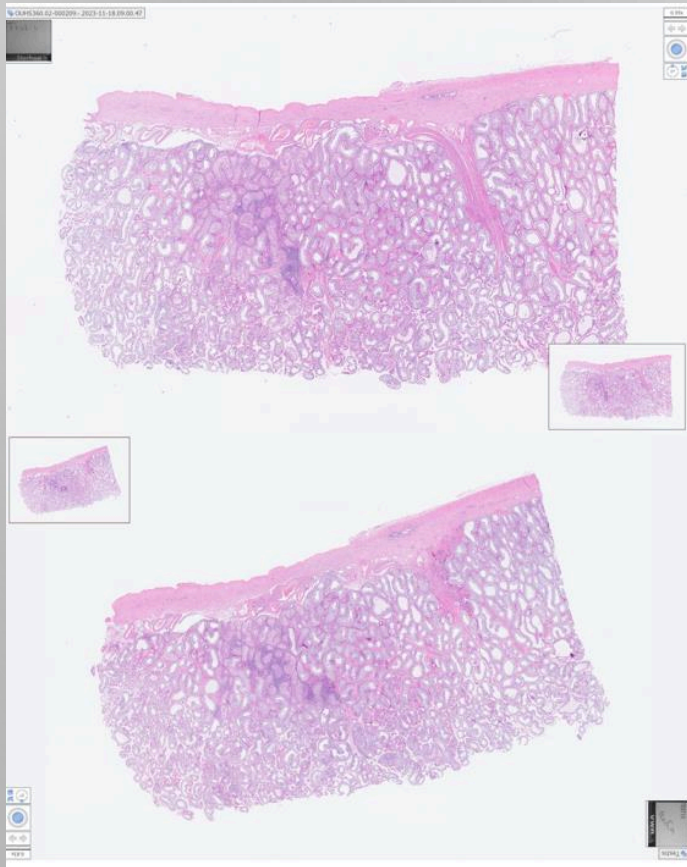


IMPLEMENTATION – WHAT DID WE DO?

- TEST OF DIFFERENT TISSUE
 - 10 DIFFERENT KIND OF TISSUE
- TEST OF DIFFERENT THICKNESS
 - IT'S NOT THE SAME AS IN THE LABORATORY
- SETUP OF DIFFERENT PROTOCOLS
- QUALITY CHECK VS MANUALLY SECTIONS
- SETUP OF PRINT
- AUTOMATED EMBEDDED BLOCK VS MANUALLY EMBEDDED BLOCKS



IMAGES - COMPARISON OF AUTOMATED SECTIONS AND MANUALLY SECTIONS



WORKFLOW

- 1 TECHNOLOGIST TO DO THE WORK WITH THE INSTRUMENT
 - MAINTENANCE, LOAD/UNLOAD, CHECK OF BLOCKS, CHECK OF SLIDES
 - OVERVIEW AND PLANNING OF THE RUN – OPTIMIZE THE TIME
 - FOCUS ON AS LITTLE DOWNTIME AS POSSIBLE
 - RUNS 2-3 TRAYS (48-72 BLOCKS) ON A RUN
 - FULL RUN OVERNIGHT (96 BLOCKS)
- 2 TECHNOLOGIST TO TRIM THE BLOCKS
 - TO SAVE TIME - THE INSTRUMENT CAN DO IT
- EVERY BLOCK WHERE THERE IS ONLY ONE SECTION ON – TYPICALLY H&E STAINING.

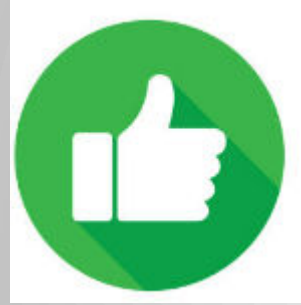
PRODUCTION ON 2 AS-410M

- DAILY GOAL 600 BLOCK OR MORE
- AROUND 3.000 BLOCKS A WEEK
- WORKING HOURS 7.30-17.30
 - AROUND 17 A NIGHT RUN IS LOADED

	2021	2022
AS410	137.107	131.107
Total PEB	225.064	216.362
Percentage rate	60,9%	60,5%

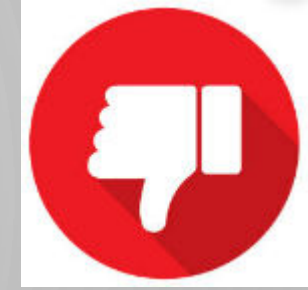
- THE CAPACITY IS FULLY MAX.
- DON'T HAVE CAPACITY FOR EXAMPLE SECTIONING OF CONTROLS FOR IMMUNOSTAINING
- ALL BIOPSIES IS SECTIONING MANUALLY BY TECHNOLOGIST

PROS



&

CONS



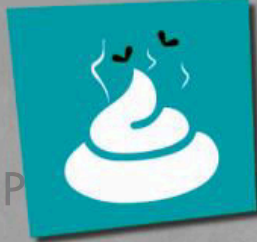
- CONSISTENCE IN:
 - THE QUALITY
 - IN PRODUCTION
- USER FRIENDLY
- LOW DAILY MAINTENANCE
- CAN SECTION DIFFERENT BLOCKS AND TISSUES.
- MUST HAVE IF YOU WANT TO BE DIGITAL
- NO OPPORTUNITY TO EXCHANGE OF PATIENTS

- TIME – IT WILL NEVER SECTION AS FAST AS AN TECHNOLOGIST
- ERRORS – SPECIALIZED TECHNOLOGIST TO TROUBLE SHOOT
- AUTOMATED EMBEDDED BLOCKS
- BARCODE – IT'S A ROBOT
- ONLY ONE SECTION ON EACH SLIDE
 - INTERVAL CAN BE DO DONE ON MULTIPLE SLIDES – TAKES A LONG TIME

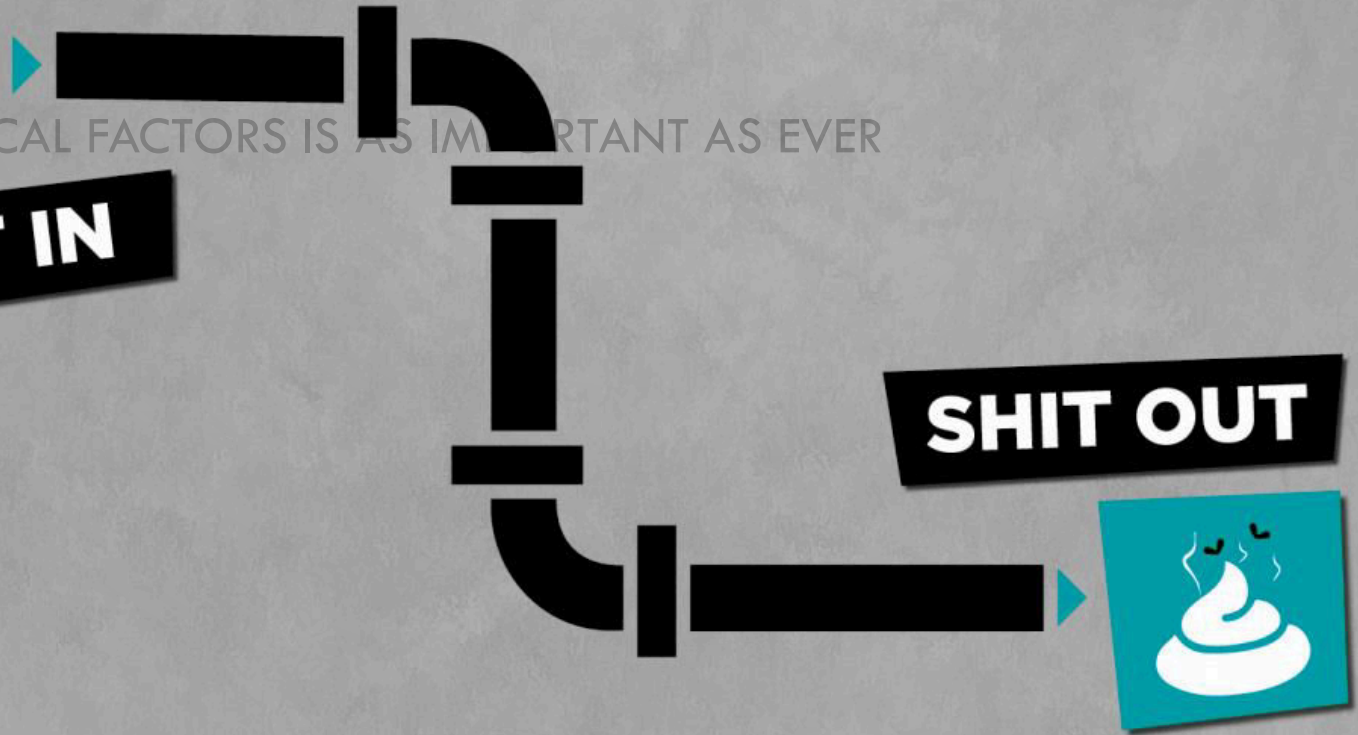
A KEY NOTE

- IT'S A ROBOT – IT DOES WHAT WE TELL IT TO DO

- THE PHYSICAL FACTORS IS AS IMPORTANT AS EVER



SHIT IN



SHIT OUT



THANK YOU FOR LISTENING

