BARCELONA 2024 ESMO congress

How can technology help the fight?

Digitalising the patient journey in gynaecology

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DECLARATION OF INTERESTS

Personal interest : Consulting/advisory board fees/Lecture-Symposium from GSK, Clovis, AstraZeneca, Roche, Esai, Seagen, Tesaro, MSD, Astellas, Janssen, Ipsen, Bayer, Novartis/3A, Pfizer, Gilead
Travel expenses from Esai, MSD, Ipsen, GSK, Novartis

Non-personal interests (research funding): AstraZeneca, GSK, Astellas, BMS (industrial) Ligue contre le cancer, Inca, Arc, Rubal Rose (academic)

Funding committee membership: Inca, La ligue Nationale contre le Cancer

Scientific implications (scientific societies and clinical research integroups) : ASCO, ESMO, GCIG, GINECO, GETUG

Focus

Subjects

- Context : Evolution of cancer care centred on tumors and patients
- Target: patients
- Technologies : e health
- Focus : Telemonitoring
- (Potential) applications in onco-gynecology

Nb : digitalisation of imaging, biology not treated

Context : the new generations of treatments in Oncology

Context

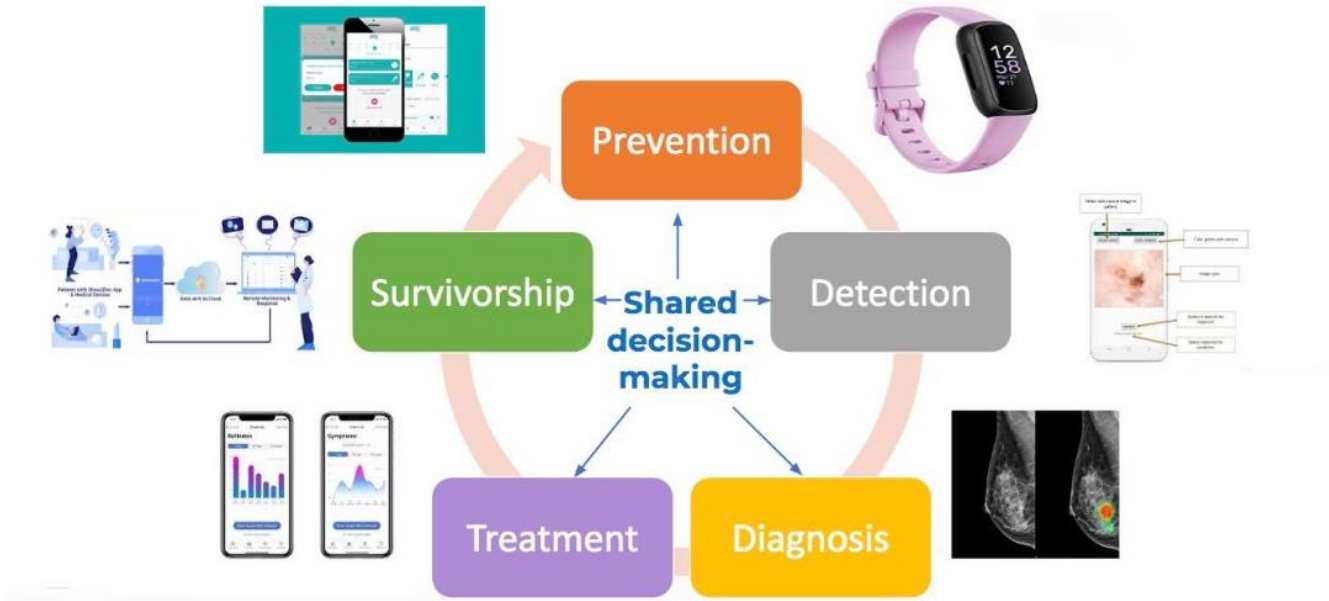
- The complexity of the treatments: multiple combinations, new drugs, with mutiple risk of new toxicities
- The increase of the oral route of administration : less health-care supervision
- The prolongation of the duration of the treatments : long period of maintenance
- The survivorship period

The Challenges

Optimizing the care and the follow-up of the patients

→ To Improve health oucomes

Throughout the different steps of the disease-journey



Digital Health

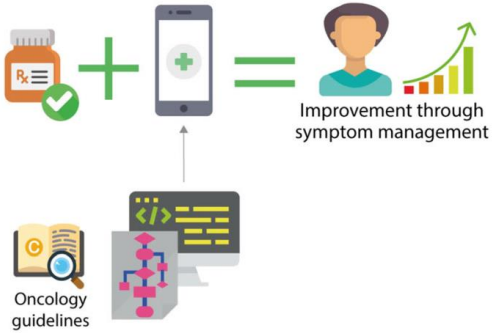
Definitions

eHealth

Telemedicine

Telemonitoring

Digital therapeutics



From Aapro et al, Supp care cancer 2020

Digital health and tele-health interventions in oncology

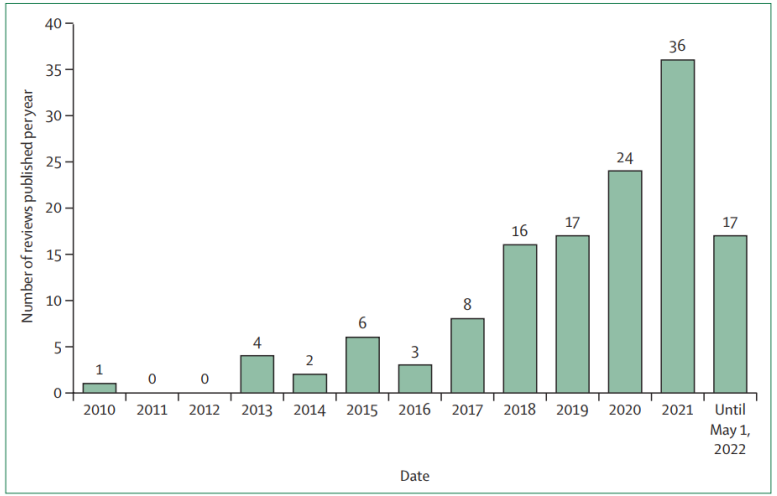


Figure 3: **Number of reviews published per year on digital health and telehealth in cancer**

	Reviews, n (%)
Population data*	
Targeted individuals	
Patients	128 (95·5%)
Family	18 (13·4%)
Health-care personnel	5 (3·7%)
Cancer types	
Brain	1 (0·7%)
Breast	17 (12·7%)
Colorectal	5 (3·7%)
Gynecological	7 (5·2%)
Haematological	4 (3·0%)
Lung	3 (2·2%)
Prostate	4 (3·0%)
Skin	6 (4·5%)
Multiple or not specified	95 (70·9%)
Cancer care continuum	
Prevention	5 (3·7%)
Screening or diagnosis	12 (9·0%)
Treatment or symptom management	48 (35·8%)
Survivorship	29 (21·6%)
End-of-life or bereavement	2 (1·5%)
Multiple or not specified	56 (41·8%)

Shaffer et al, The Lancet 2023

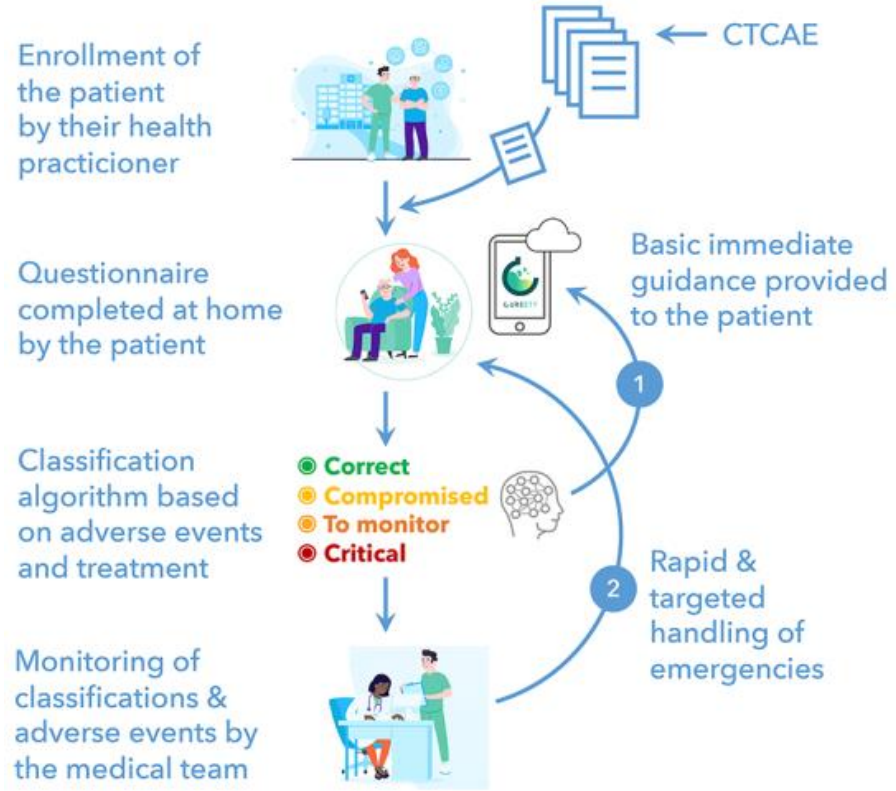
Tele-monitoring

It works and it is feasible in clinical practice

The principle

- Captures e-PROs +/- connected to sensors
- Patient monitoring +/- symptoms management by health providers
- Actions : from Individual guidance for patient to calls +/- medical actions

Example



Adapted from *Wells, Natmed 2022,* Helissey et als, Front Dig Health 2023 ,

Telemonitoring

During treatments

- Reduced symptom burden
- Reduced treatment complications
- Improved treatment adherence to systemic and oral medications
- Fewer dose reductions
- Improved physical function and QoL
- Reduced ED visits and hospitalisation
- Potential increase in survival

From Di Maio Ann oncol 2022, Basch et al Jama 2017

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Ex : Basch Study

? % pts with gynecological cancer

- Patients treated for an advanced cancers (breast, lung, genitourinary, GI)*
- R
- 2:1
- (n = 766)

Intervention
Self evaluation of 12 symptoms
- Before and between the visits
- Weekly recall email
- Warning email for nurses
- Report to the oncologist (for the visit)

Control
Standard follow-up of symtoms

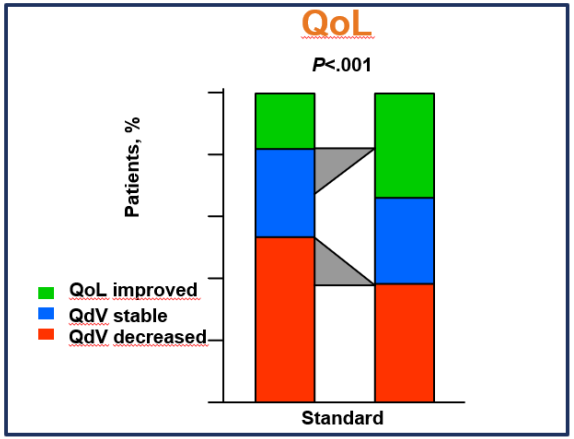
QoL (EQ-5D) at 6 months

Secondary endpoints: Emergency admission urgences

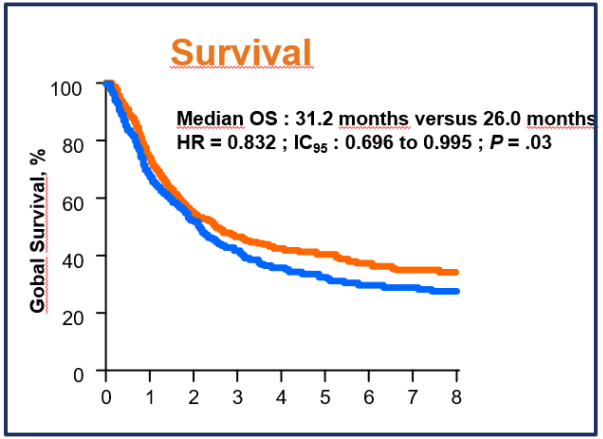
OS

** Treatments authorized FDA drugs 2016 (nivolumab, pembrolizumaab, cabozantinib, olaratumab, eribuline, ...)*

QoL



Survival

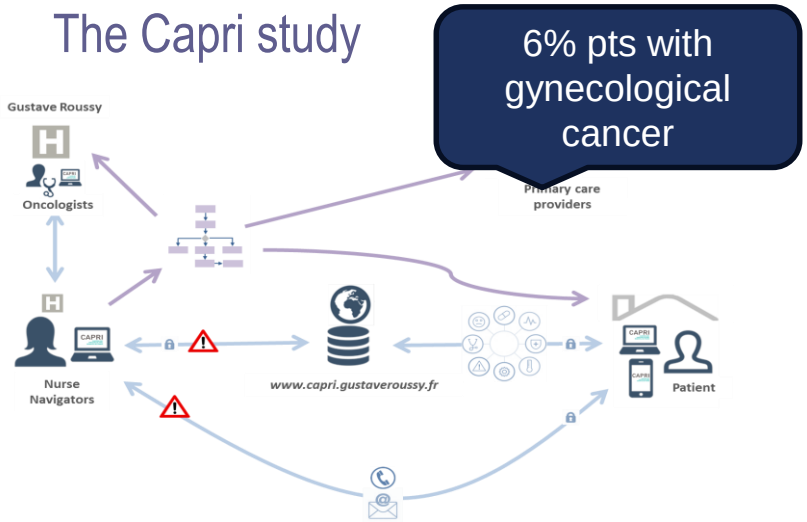


Basch et al Jama 2017

Emergency Decrease of 7% of emergency admissions (*P* = .02)

Another ex of telemonitoring

The Capri study



- The adoption rate : 52%(42% > 65 yrs, 15% > 80 yrs

Criteria	CAPRI	control	p
Dose-intensy relative : my (± DS)	0,93 (± 0,26)	0,89 (± 0,19)	0,04
Toxicities grade ≥ 3, n (%)	75 (27,6)	106 (36,9)	0,02
Hospitalization, n (%)	62 (22,8)	91 (31,7)	0,02
Days of hospitalization, my (± DS)	2,82 (6,96)	4,44 (9,60)	0,02
Emergency, n (%)	41 (15,1)	63 (22,0)	0,04
Patient experience (PACIC score) : my (± DS)	2,94 (0,83)	2,67 (0,89)	0,01
Median PFS, months (ms)	6,8 ms	6,5 ms	HR=0,94

- Randomized trial : pt treated with Oral therapies
- Intervention : web-application + nurse navigator led FU
- 1st endpoint : optimization of TT dose,
- 2d endpoint : toxicity,hospitalization, QoL, Response, Survival

Mir et al, nature medecine 2022

Telemonitoring : Cost saving?

Ex : The Capri study

- slight but significant increase in GP consultations,
- compensated by a significant decrease in hospital admissions and hospitalization durations

→ Saving cost for the National Health insurance

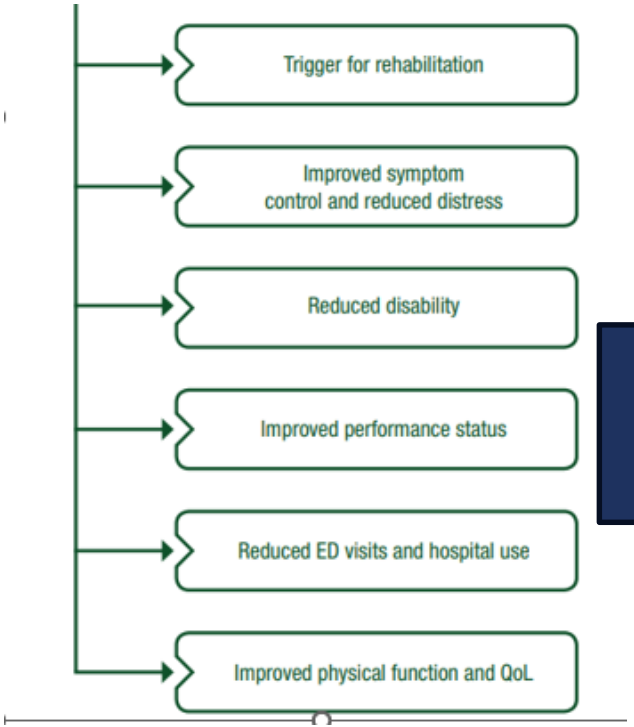
Table 4 Monthly costs and total cost of the 4.58 months study follow-up associated with both arms, and corresponding budget impact in the collective perspective scenario analysis

	Monthly cost			Study follow-up (4.58 months)		
	CAPRI	Control	Budget impact	CAPRI	Control	Budget impact
→ Medical Consultations	50.79	47.31	3.48	232.91	216.96	15.95
Paramedical care	60.82	64.61	-3.79	278.88	296.27	-17.39
ER	1.24	0.72	0.52	5.71	3.31	2.4
→ Hospitalisations	584.61	839.66	-255.05	2680.79	3850.34	-1169.55
Drug acquisition	2410.55	2346.92	63.63	11040.33	10748.91	291.42
Transport	19.34	25.38	-6.04	88.7	116.39	-27.69
CAPRI program	87.23	0	87.23	400	0	400
Total	**3214.60**	**3324.61**	**-110.02**	**14722.83**	**15226.73**	**-503.89**

Minvielle et als, Eur J Health Economics, 2024

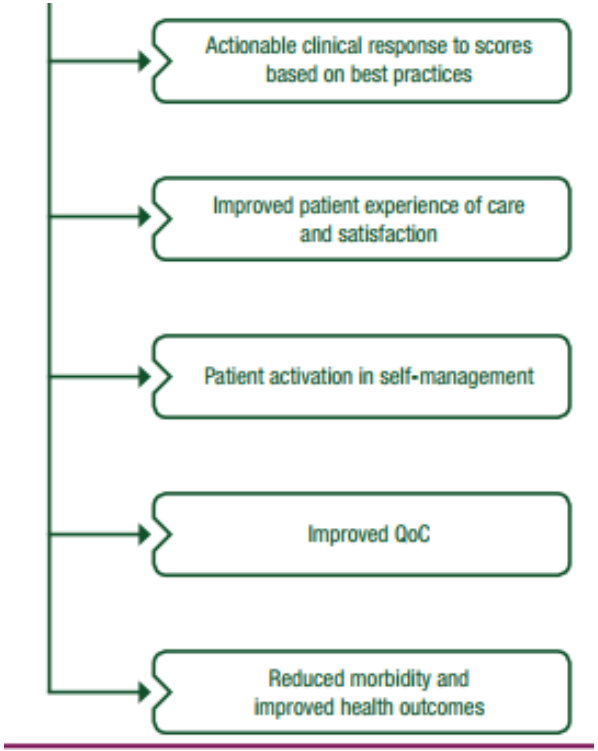
Telemonitoring : also benefit in follow-up and supportive care

Follow-up (relapse and complication)



Symptoms
QOL, satisfaction
Quality of care

Supportive care

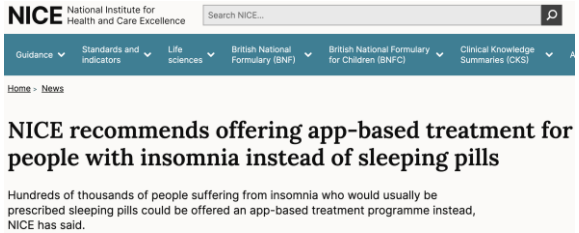


Di Maio Ann oncol 2022

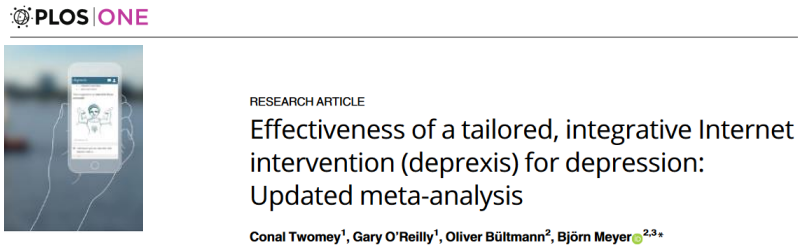
Digital interventions?

Some solutions already proven in other areas that could be implemented in supportive care in Cancer

Ex : Sleep : Sleepio > Sleeping pills

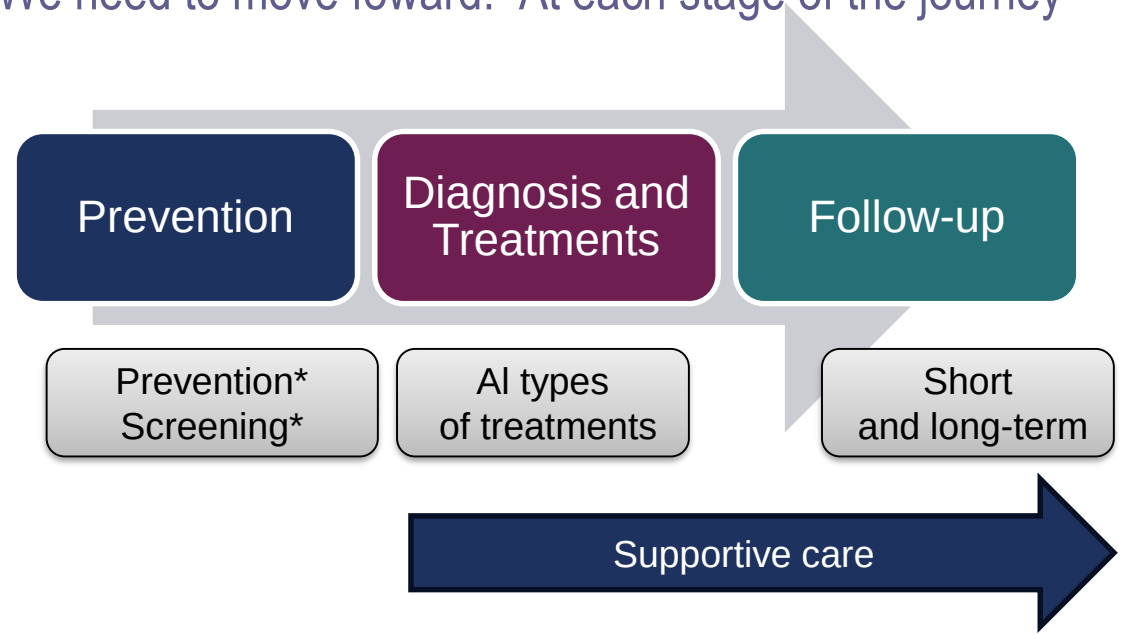


Ex : Depression: Deprexis > Psychotherapy



Applications and implementation of digitalized interventions in gynecology

We need to move foward! At each stage of the journey



- Telemedecine
- Digital monitoring
- Digital interventions

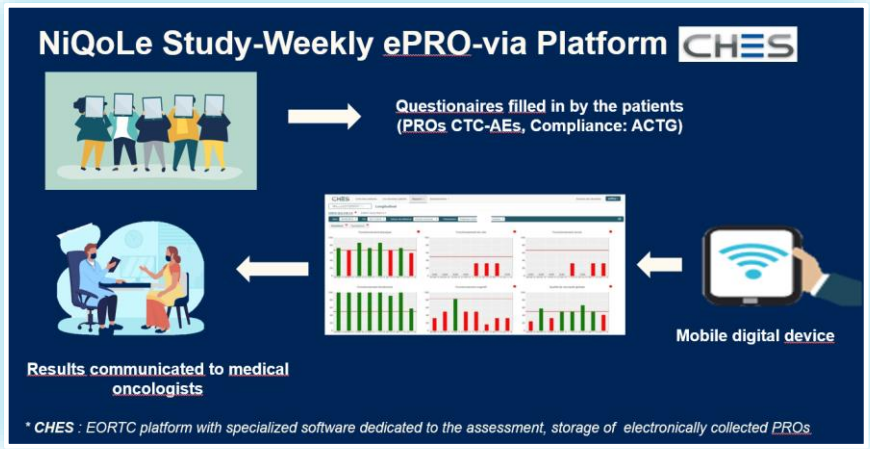
➔ **Validation in Clinical trials**

** Cervical cancer*

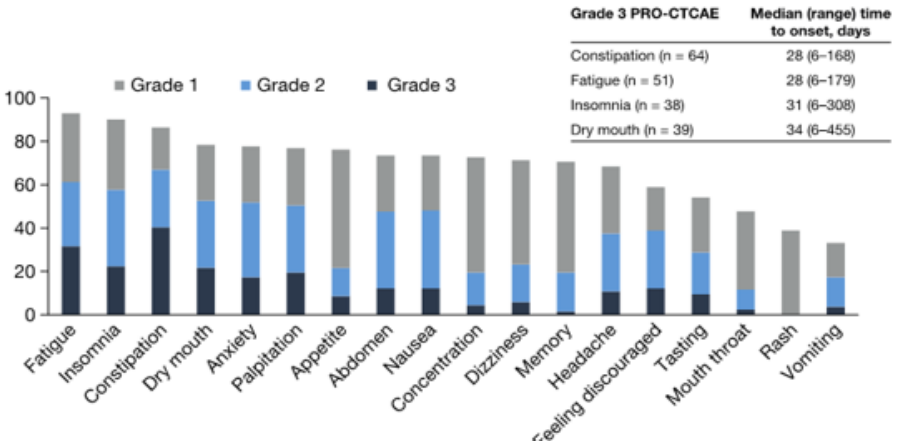
Implementation in gynecology

We already have a few marbles to our credit

The experience of Niqole Study : « the dinau study » Digital follow-up of Parp-I in routine is feasible and useful to better understand the real side effects from the pts in real life



	N=139
Median age in years [range]	70 [44-88]
G8<14 (pts > 70 yrs)	20 (36%)



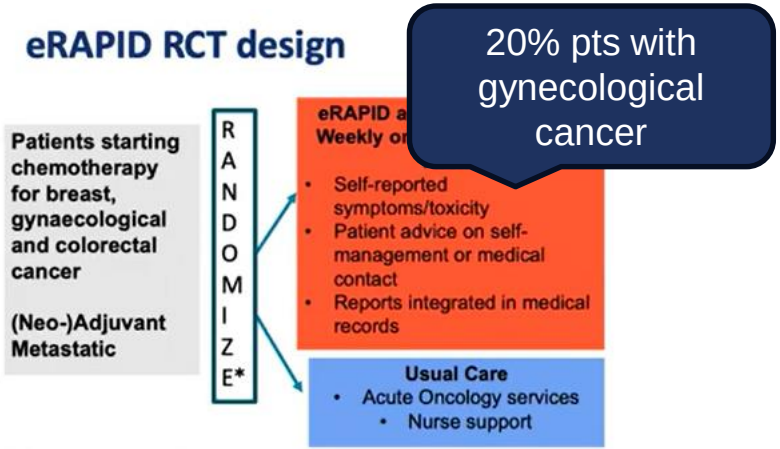
Grade 3 PRO-CTCAE	Median (range) time to onset, days
Constipation (n = 64)	28 (6–168)
Fatigue (n = 51)	28 (6–179)
Insomnia (n = 38)	31 (6–308)
Dry mouth (n = 39)	34 (6–455)

Joly et al, submitted

A lot of important PROs missed or underestimated by physicians

Telemonitoring and FU during chemotherapy

From E-Rapid-health intervention study

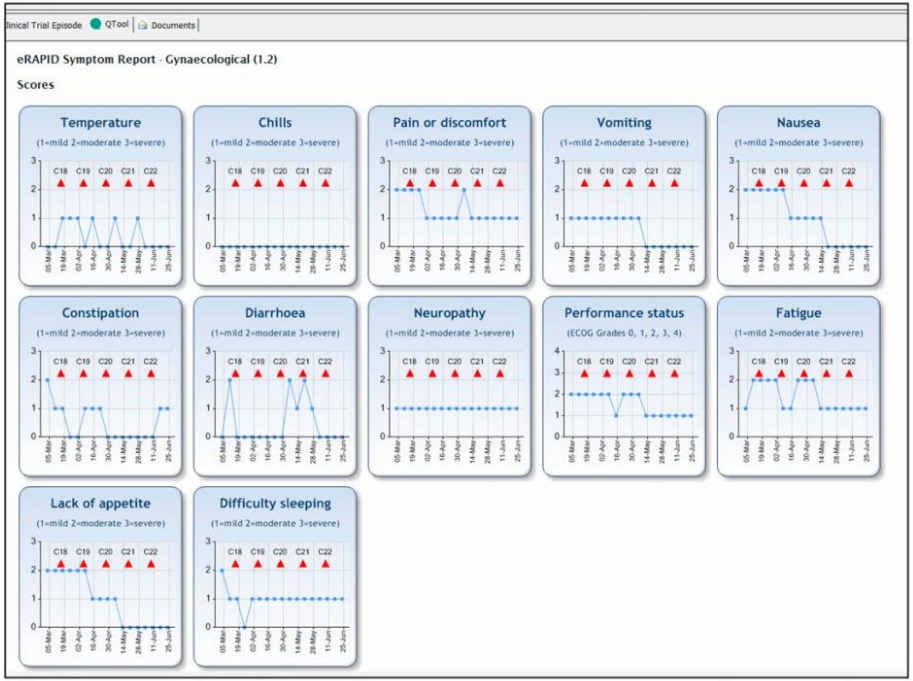


Main results

- Improvement of physical well being, self efficacy

Ex : pt with weekly paclitaxel

A Graphic format particularly suitable for tracking changes over time (most recent report is on the right).

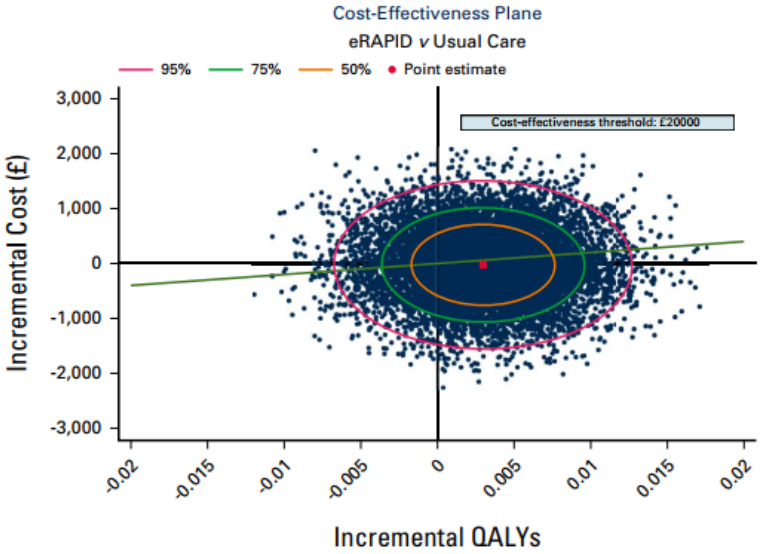


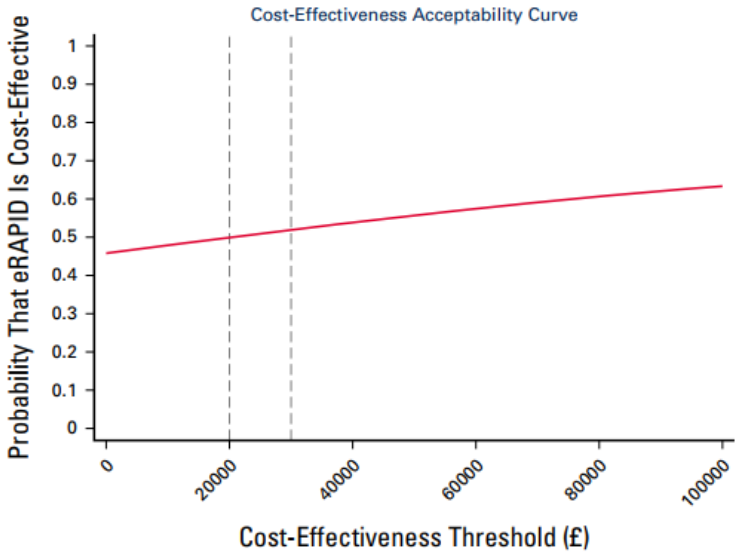
From Absolom et al JCO 2021

e-FU during chemotherapy

Cost-effectiveness study (18 weeks analysis)

The eRAPID online system for symptom monitoring can lead to improved patient quality of life and reduced health care costs and patient out-of-pocket health care–related costs during cancer treatment. eRAPID may be a cost-effective addition to care for patients on chemotherapy, particularly those with early-stage disease.





Dawkins et als, JCO practice 2024

Management of OC FU and treatments symptoms

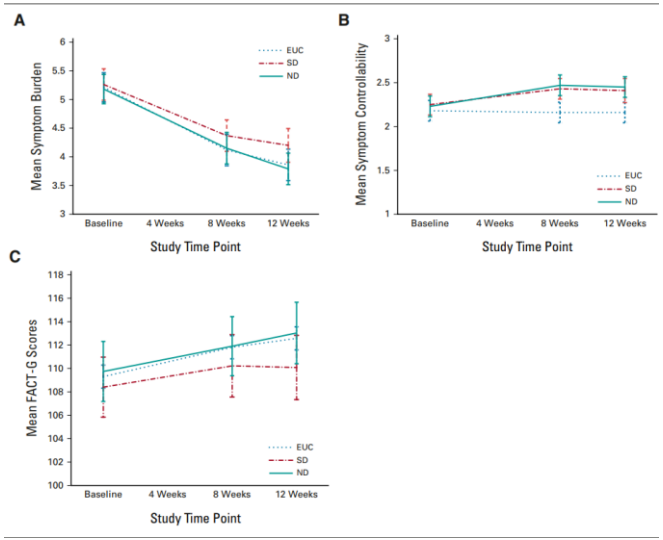
Recurrent ovarian cancer : EX of the WRITE Study (GOG-0259)

- Recurrent OC
- > 3 symptoms
- Monthly online symptom assessment

583 pts

R

- Nurse guided
- Self-directed
- Usual care



Primary endpoints :
Improve target symptom burden, controllability and QoL

Intervention : Evidence-based symptom care guides, oriented informations

Donovan et al JCO 2022

Both WRITE Intervention groups showed significantly greater improvements in symptom controllability

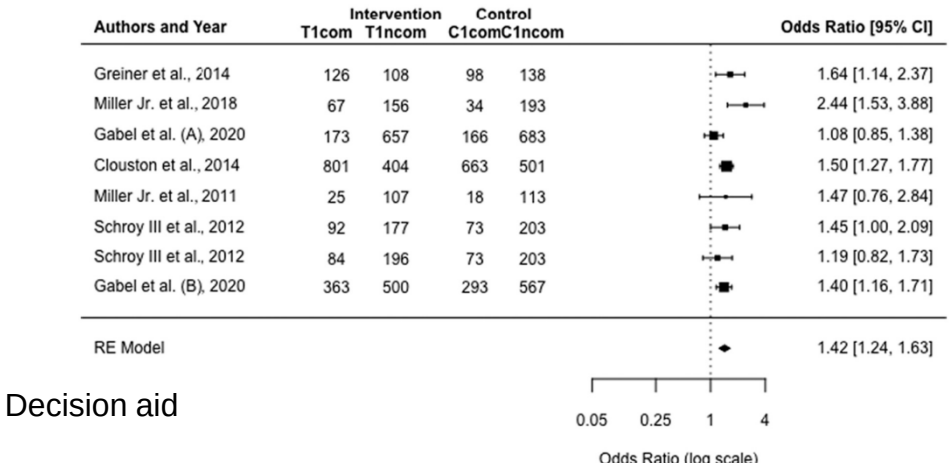
Digitalisation to improve the promotion of screening

Lessons from colorectal cancer

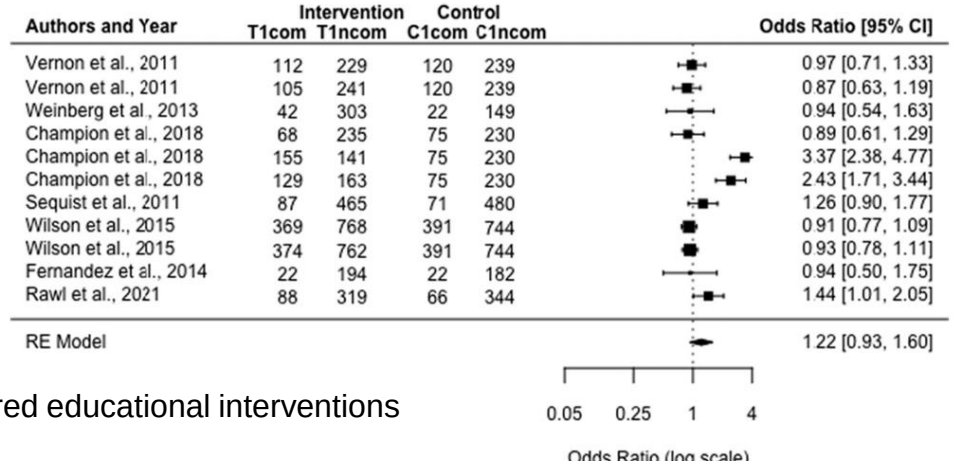
Meta-analysis

- Online educational modules
- **Interactive decision making help**
- Follow-up messages

Can help for screening uptake



Decision aid



Tailored educational interventions

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Lau et al Prevention Med 2022

Cervical prevention and screening

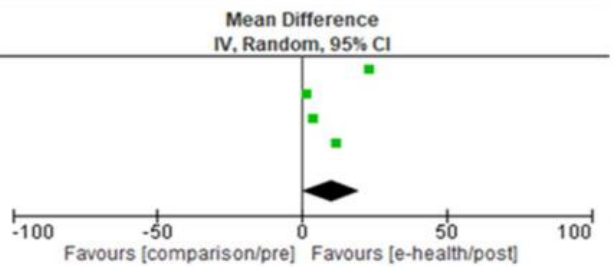
Huge potential but few well conducted studies

- Education method of e-health with didactic sessions, including videos movies increase knowledges, intention and uptake

A: Mean difference of knowledge score on cervical cancer (n=4)

Study or Subgroup	E-health / Post-test Mean	SD	Total	Comparison / Pre-test Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Abiodun et al. 2014	25.69	6.2	325	2.22	6.04	289	25.0%	23.47 [22.50, 24.44]
Cooper et al. 2021	3.86	1.78	764	2.22	1.76	764	25.1%	1.64 [1.46, 1.82]
Ornelas et al. 2018	9.3	1	40	5.6	2.8	40	25.0%	3.70 [2.78, 4.62]
Thompson et al 2019	97.5	1.7	42	85.5	4.2	42	24.9%	12.00 [10.63, 13.37]
Total (95% CI)			1171			1135	100.0%	10.20 [0.24, 20.16]

Heterogeneity: Tau² = 103.04; Chi² = 2079.53, df = 3 (P < 0.00001); I² = 100%
Test for overall effect: Z = 2.01 (P = 0.04)



An important help to move forwards to HPV self simple kits screening

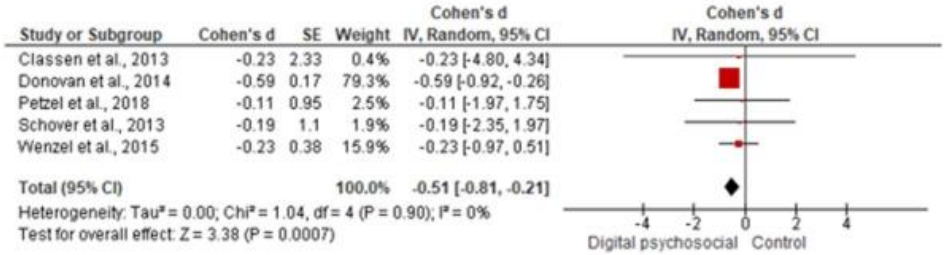
Romli et al, Plos one 2022

Digital intervention in gynaecology : Some applications

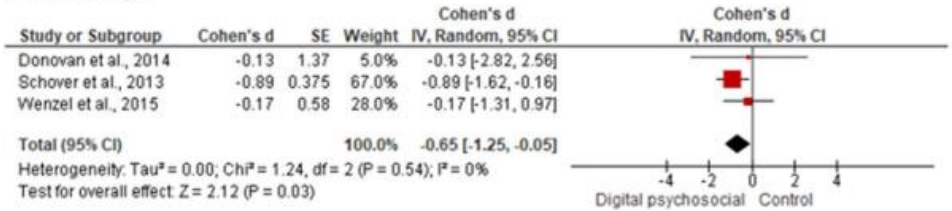
Digital psychosocial interventions in the area of gynaecological cancer

Psychological distress

Post intervention:



Follow-up:



Yen , Sup care cancer, 2024

Challenge for the large implementation in routine

Friendly tools
- Validated (by clinical trials)
- Easy to use
- In complement to the practitioner

Institutional challenge
- Modification of the organisation

Technological challenges
- Integration in electronic health records
- Interoperability
- Security of digital data

Financial challenges
- Digital health tools reimbursements
- Implementation in community settings
- Adressing Heath care disparities

In Gyne : Age (endometrial) , poor socio-economic context (cervical)

Aapro et al, Suppcare cancer, 2020, Parikh JNCI 2022

Conclusions : integration of digital tools

The medecine of « today » not of tomorrow for gyne patients

- In all the stages of the patients' journey
- Focus on prevention (i.e. cervical cancer) : promotion of prevention and screening
- To improve quality of care, better treatments management and outcomes
- Challenge with elderly patients
- To continue evaluating the large implementation with well conducted clinical trials including medico-eco evalutions
- And a huge opportunity for new modalities to follow patients in clinical trials and to generate data

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Thank you for your attention

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