

Remote Patient Monitoring: State of the art

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**NAPOLI
2023**

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- Stock shareholder:
- Spouse/partner:
- Other support (please specify):



DIFFERENT USE OF REMOTE PATIENT MONITORING
Mobile Phone, Tablets, APP, Video Consulting, mail

WHY?

- Shorter hospital stay for increasing **AMBULATORY SURGERY**
- Reduce of the clinical capacity for an overnight stay in the hospital, during **COVID PANDEMIC**
- **HEALTHCARE COST** cuts
- Improve **DROPOUT** rate

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WHEN/WHERE?

① EARLY POST OP

② LONG TERM FOLLOW-UP

DIFFERENT USE OF REMOTE PATIENT MONITORING Mobile Phone, Tablets, APP, Video Consulting, mail


① EARLY POST OP

WHEN/WHERE?

- UNDER ERABS PROTOCOL
- HOSPITAL DISCHARGED \leq 2 DAYS

Feasibility of Postoperative Home Monitoring Using Video Consultation and Vital Sign Monitoring of Bariatric Patients

Obesity Surgery (2020) 30:2369–2374

L. M. G. Nijland¹  • R. N. van Veen¹ • A. T. Ruys¹ • C. L. van Veldhuisen¹ • T. H. Geerdink¹ • S. M. M. de Castro¹

- ***“ERAS implementation reduce hospital costs. However Early Discharge May Feel As A Large Transition, Moving From A Safe And Supportive Hospital Environment Into An Independent Environment At Home”***
- ***“Home monitoring may be the answer to provide this early post-operative support”***
- ***“In addition, home monitoring could potentially lead to earlier detection of post-op complications”***

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84 PATIENTS: 61 LRYGBP 23 LSG

Total No. of patient (%)	<i>N</i> = 84 (100)
No. of successful video consultations on day 1 after discharge	77 (92)
No. of successful video consultations on day 2 after discharge	74 (88)
No. of successful video consultations on day 3 after discharge	76 (90)
No. of patients who completed all measurements on day 1 after discharge	52 (62)
No. of patients who completed all measurements on day 2 after discharge	49 (58)
No. of patients who completed all measurements* on day 3 after discharge	63 (75)
No. of patient who did not perform any measurement (all 3 days)	4 (5)
No. of patient who were unreachable for video consultation (all 3 days)	4 (5)
Median admission time	1 (IQR 1–4)
Complications n (%)	7 (8)
Unscheduled telephone calls of patients to the hospital n (%)	13 (16)
Emergency Room visit(s) n (%)	14 (17)
Readmission n (%)	7 (8)

No. = number; *IQR* = interquartile range

*Only one measurement was required at the final day

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Table 4 PSQ-18 scale scores ($N=66$)

Subscale	Score ^a
General satisfaction	4.0 (3.5–4.5)
Technical quality	3.8 (3.5–4.0)
Interpersonal manner	4.0 (3.5–4.0)
Communication	4.0 (3.5–4.0)
Financial aspects	3.5 (3.0–4.0)
Time spent with doctor	4.0 (3.0–4.0)
Accessibility and convenience	3.5 (3.3–4.0)
Total score	3.8 (3.4–4.0)


PSQ-18 = Patient Satisfaction Questionnaire 18

^a Values are median (IQR)

Scores represent the score on the five-point Likert scale (1 = totally disagree, 2 = disagree, 3 = not sure, 4 = agree and 5 = totally agree)

Feasibility of Same-Day Discharge After Laparoscopic Roux-en-Y Gastric Bypass Using Remote Monitoring

Obesity Surgery (2021) 31:2851–2858

Leontien M.G. Nijland^{1,2}  • Steve M.M. de Castro¹ • Marlou Vogel³ • Jan-Willem F. Coumou³ • Pim W.J. van Rutte¹ • Ruben N. van Veen¹

- *Single Center Prospective Feasibility Study In A Selected Group Of Patients Undergoing Gastric Bypass*
- *50 pts, LRYGBP Same day discharged, for 48 h using medical device, measuring vital signs three times a day*
- *Video consulting twice a day for 2 post-op days by a doctor*

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Table 1 Inclusion and exclusion criteria for study participation

Inclusion

- A primary laparoscopic RYGB
- BMI under 50

Exclusion

- A cardiovascular disease (e.g., myocardial infarction, heart rhythm disorder)
- Anti-coagulant use or coagulation abnormalities
- A severe pulmonary disease or severe OSA (AHI above 15) including CPAP therapy
- History of major abdominal surgery via medial laparotomy
- Diabetes mellitus with insulin use
- Unable to speak or understand the Dutch spoken language or to understand or use the medical devices and mobile application
- Absence of ambulatory help during the 24 h following hospital discharge (e.g., partner, friend, roommate)
- A travel distance of more than 45 min from the hospital

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Table 2 Postoperative criteria for approval of same-day discharge

1. The operation took place before 11 o'clock
 2. Only the first or second procedure of the day, with a minimum of 6-h postoperative monitoring
 3. No abnormalities or complications during or after the surgical procedure
 4. Postoperative vital signs were normal (heart rate <100, body temperature under 38.0 C, no hypotension defined as lower than 90 mm Hg systolic or 60 mm Hg diastolic (27))
 5. Preoperative and postoperative blood hemoglobin levels differ less than 1 point in mmol/l
 6. The bariatric surgeon decides if the patient is fit for discharge (absence of vomiting, uncontrolled pain, wound problems, or doubt)
-

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Table 5 Performed and reviewed home measurements $n=44$

Time points	Day 1			Mean day 1	Day 2		Mean day 2
	M 1	M 2	M 3		M 1	M 2	
Video consultations, n (%)							
Video consultations	38 (86)	n.a.	40 (91)	89%	40 (91)	40 (91)	91%
Telephone consultations	6 (14)	n.a.	4 (9)	11%	4 (9)	4 (9)	9%
Total consultations, n (%)	44 (100)	n.a.	44 (100)	100%	44 (100)	44 (100)	100%
Genius 3 measurements							
Tympanic temperature	44 (100)	40 (91)	44 (100)	97%	43 (98)	38 (86)	92%
Checkme pro measurements							
Heart rate	43 (98)	41 (93)	43 (98)	96%	44 (100)	39 (89)	95%
Systolic blood pressure	35 (80)	33 (75)	35 (80)	78%	36 (82)	30 (68)	75%
Blood saturation	43 (98)	42 (95)	41 (93)	95%	42 (95)	36 (82)	89%
VAS pain score	44 (100)	42 (95)	42 (95)	97%	44 (100)	38 (86)	93%
Total measurements, n (%)	209 (95)	198 (90)	206 (94)	93%	209 (95)	181 (82)	89%

n number, *n.a.* not applicable, *M1* measurement 1, *M2* measurement 2, *M3* measurement 3; VAS Visual Analogue Scale

Laparoscopic sleeve gastrectomy follow-up: use of connected devices in the postoperative period *Surgery for Obesity and Related Diseases* 15 (2019) 1058–1065

Sergio Carandina, M.D.^{a,*}, Viola Zulian, M.D.^a, Anamaria Nedelcu, M.D.^a,
Federico Sista, M.D., Ph.D.^b, Marc Danan, M.D.^a, Marius Nedelcu, M.D.^a

PROSPECTIVE PILOT STUDY DESIGNED TO ASSESS THE RISK AND BENEFIT OF USING CONNECTED DEVICES IN THE POST-OP FOLLOW-UP OF PATIENTS OPERATED ON BY LSG

- **Discharged 24 hours after surgery**
- **Vital signs were monitored (3 times/day) via connected devices with data sent to an internet platform to make them immediately viewable by the surgeon**
- **100 PTS were enrolled**

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CONCLUSION

Early Post-op Follow-up Can Be Done At The Patient's Home Under The Monitoring Of Connected Devices In Properly Educated And Prepared Patients Without A Risk Of Increase In The Rate Of Complications And Rehospitalization

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WHEN/WHERE?


✓ **EARLY POST OP**

② **LONG TERM FOLLOW-UP**

Remote Patient Monitoring: State of the art

Remote Follow-up with a Mobile Application Is Equal to Traditional Outpatient Follow-up After Bariatric Surgery: the BELLA Pilot Trial

Obesity Surgery (2023) 33:1702–1709

Cui Yang¹  · Mia Kessler¹ · Niki Taebi¹ · Michael Hetjens² · Christoph Reissfelder¹ · Mirko Otto¹ · Georgi Vassilev¹


44 PTS (Interventional group)
Smartphone-based (APP) +
questionnaire (Bariatric Quality of Life
Index) fully remote follow-up.
Every six weeks during the first 9
months and then 1 year after surgery

43 PTS (Control group) in-person
follow-up group (Bariatric Quality of
Life Index).
Two weeks after surgery and after
every 3 months in the first year.



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CONCLUSIONS

Data suggest that p.o. f.u. using a mobile application is feasible in pts and so a fully remote f.u. program represents a concrete alternative to the standard in person f.u.

Complication rates, weight loss, BIA, Bariatric Quality of Life, vitamins and minerals in serum were comparable between the two groups.

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BENEFITS FOR COMMUNITY

- Patients could benefit from a Remote FU because they did not need to travel for a long distance, spend time parking and waiting in a busy outpatient clinic.
- Medical professionals could also benefit from remote FU: not scheduling appointments so they can focus on caring for patients with more severe problems

Remote Patient Monitoring: State of the art

Remote assessments and behavioral interventions in post-bariatric surgery patients *Surgery for Obesity and Related Diseases* 14 (2018) 1632–1644

Lauren E. Bradley, Ph.D.^{a,*}, J. Graham Thomas, Ph.D.^b, Megan M. Hood, Ph.D.^a,
Joyce A. Corsica, Ph.D.^a, Mackenzie C. Kelly, Ph.D.^a, David B. Sarwer, Ph.D.^c

35 PAPERS WERE SELECTED

- **Majority with long term data (≥ 2 years FU)**
- **Remotely assessments included surveys via telephone or internet, videoconferencing, EMA, remote objective measures**



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CONCLUSIONS DATA

- **Good feasibility and acceptability with patients**
- **It is too soon to say if using remote assessments increase rate of follow-up.**

CONCLUSIONS

- **Use of remote patient monitoring in early post-op is feasible, reliable, no differences in complications, economic for patients and community, with large satisfaction but it is recommended in selected patients**
- **For long term follow-up, video consulting and/or use of other devices is feasible, comfortable, reduce costs, similar results in terms of weight loss but we need more studies to know if the drop out rate is reduced.**

Whatsapp for bariatric's emergency



Documento: 202300059323 versione: 1 protetto in data: 05/06/2023 20:23

ASST VALLE OLONA - P.O. SOMMA LOMBARDO
 Pronto Soccorso - Ospedale Angelo Bellini
 Responsabile F.F. Dott. Angelo Ianni
 Via Ospedale, 3 - Somma Lombardo (VA)

Codice Accesso: 20231053832 Data/Ora di Ammissione: 05/06/2023 17:23
 Data/Ora di Chiusura: 05/06/2023 20:03

Verbale di Pronto Soccorso

Paziente:	NATALE VANESSA	Sexo:	F	Codice Fiscale:	NTLV5596L41L083A
Data di Nascita:	01/07/1996	Info:	Teano (CE)		
Residenza:	via visconti, 29 - Somma Lombardo (VA)				
Domicilio:	via visconti, 29 - Somma Lombardo (VA)				
Tel. Abitazione:		Tel. Cellulare:		Tel. Uff. Bot:	
ASL:	ATA DELL'INSUBRIA	Regione:	Lombardia		
UNO/PLS:					

TRIAGE

Priorità: **3 Verde**

Rivoluzione: **Autonomia del paziente**

Motivo dell'accesso: **Altri sintomi e disturbi**

Motivo di Arrivo: **Decisione propria**

Operazione: **COVID n. 1a21c41a-4ebc-486a-888e-9814MS3d4c**

Unità: **PS Somma Lombardo**

Note: **Giunge in ps autonomamente per riferita sintoma da due gg con tosse produttiva in regressione. Non riferisce febbre. Da stamattina algia al in FID senza irradiazioni particolari. Pz con stitici. APRi muta. Negs farmacoallergie**

ANAMNESI

Data/Ora: **05/06/2023 18:12** Operatore: **CLAUDIA ORNELLA SOLDATI**

Da circa 2 gg riferisce tosse semiproduttiva e asfisia, da stamattina dolore in ipocondrio dx. In anamnesi stitici (2020) conseguentemente saltuari cali glicemici. Non assume farmaci e nega allergie

ESAMI OBIETTIVI

Data/Ora: **05/06/2023 18:30** Operatore: **CLAUDIA ORNELLA SOLDATI**

Adesione gittosa trattabile dolorabile in ipocondrio dx, non segni di peritonismo in alto, organi ipocondriaci in sede, parastasi fisiologica, alvo canalizzato e tendenzialmente stitico

PRESTAZIONI

Data/Ora Richiesta: **05/06/2023 18:12** Richiedente: **CLAUDIA ORNELLA SOLDATI** Urg: Erogatore: **PS Somma Lombardo**

UNITA' GENERALE DI PRONTO SOCCORSO

Somma Lombardo, 5 05/06/2023 20:03









Dottoressa buongiorno
va bene nella liquida?

11:13



Dottore buonasera
posso fumare questa
sigaretta???

16:50

Dottorressa ho dimenticato di chiedere per quanto riguarda i rapporti sessuali.

Volevo sapere se una gravidanza potrebbe essere rischiosa?

Scusi per il disturbo la ringrazio per la sua disponibilità. Buona giornata

10:38

Nessuna gravidanza prima di un anno!!!!!!!

10:41 🕒

THANK YOU
FOR YOUR
ATTENTION

