

Development of an e-health tool for the follow up of early discharge premature babies: e-Prematur

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Statement of the problem:

Worldwide, the preterm birth rate is estimated to be about 11 percent and about 15 million children are born preterm each year. (1,2) The early NICU discharge has been advocated for selected preterm infants to reduce both the adverse environment of prolonged hospital stay and to encourage earlier parental involvement by empowering parents and reduce the costs of care. (3) But this early discharge need to be complemented with a follow up, in most of cases with nurse in-home visits (4). Conventional hospital-based postdischarge monitoring could be improved in terms of costs and clinical effectiveness by using a telemedicine approach (5).

Objective:

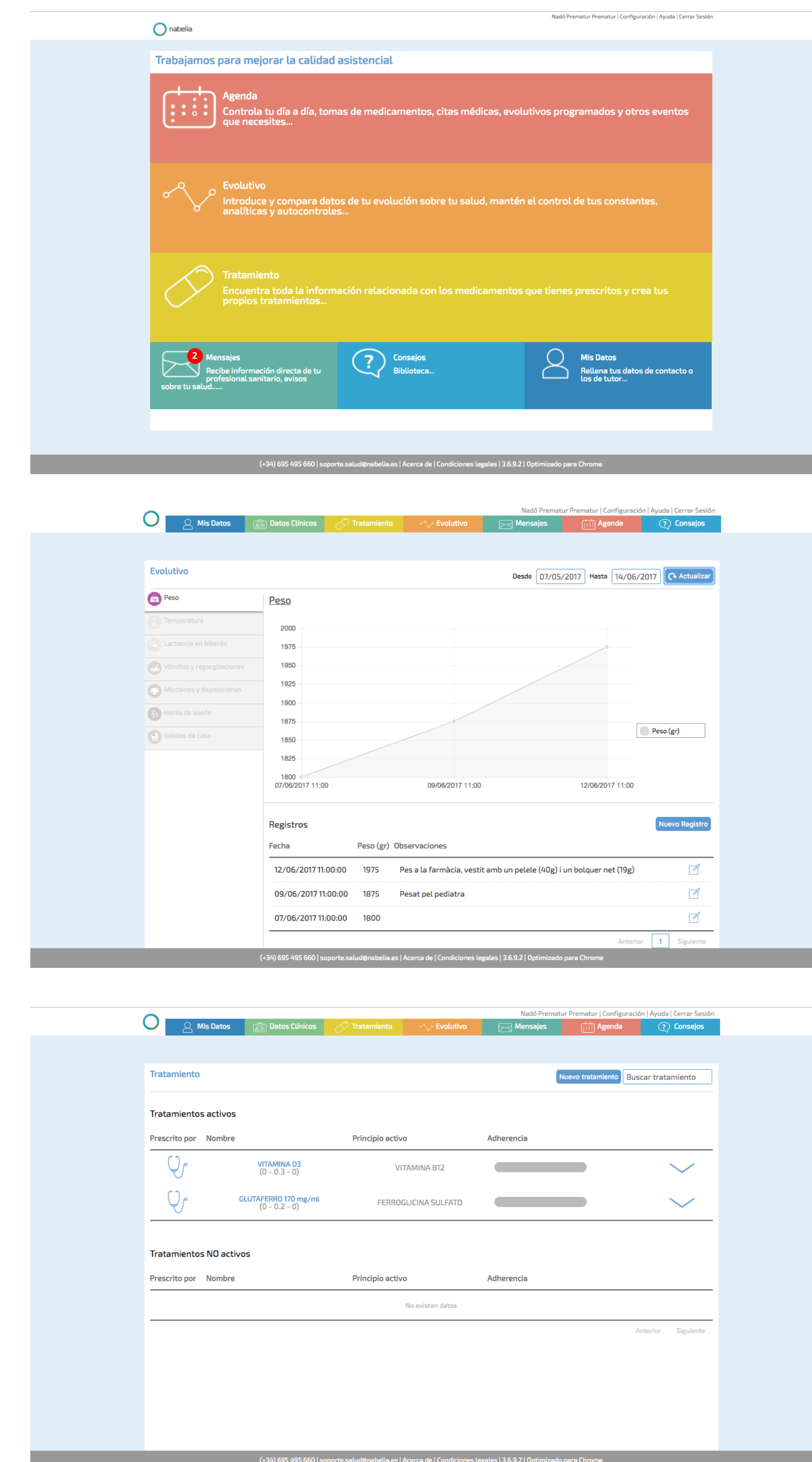
To inform the development of a web-based and mobile application. We develop a consumer-focused e-health tool, for the follow up of the early discharge of premature babies.

Methodology & Theoretical Orientation:

To ensure a patient-centered e-health tool we made interviews to proposed end-users. For the clinical issues, we formed a research team with experienced NICU nurses, neonatologists and allied health professionals. We also count on one IT company for the programming and technical support. This four years’ project involves, defining the target audience and needs, software development including validation and testing the algorithm, pilot testing and refinement and end-user testing.

Findings:

We made a large review of the literature about interventions for the follow up of the early discharge of premature babies. To ensure the needs of the end-user we made thirteen in-depth interviews to parents of premature babies. The analysis revealed they want to get in touch with a NICU expert, emotional support and an easy use tool. The workshop with nine multidisciplinary health care professionals check the algorithms and parameterization of the alarm system, work on the evidence based health care information as well as verify the needed fields for a correct follow up. The first pilot testing was done by professional’s experts in neonatology, they check the whole tool functionality. The end-user testing was done by twenty-four parents.



Conclusion & Significance: This e-Health program with a patient-centred telematic tool enable the professionals of the Neonatal Intensive Care to establish a follow up program empowering the parents with the premature baby care, without the need of costly and time consuming home visits.

Recent publication:

1. WHO, March of Dimes, Partnership for Maternal, Newborn & Child Health, Save the Children. Born too soon: the global action report on preterm birth. www.who.int/maternal_child_adolescent/documents/born_too_soon/en/ (Accessed on October, 2016).
2. Blencowe H, Cousens S, Oestergaard MZ, et al. National, regional, and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications. *Lancet* 2012; 379:2162.
3. Merritt, T. A., Pillers, D., Prows, S. L., Ventura, S., Martin, J., Curtin, S., ... Becker, M. (2003). Early NICU discharge of very low birth weight infants: a critical review and analysis. *Seminars in Neonatology*: SN, 8(2), 95–115. [http://doi.org/10.1016/S1084-2756\(02\)00219-1](http://doi.org/10.1016/S1084-2756(02)00219-1)
4. Álvarez Miró, R. (2011). Influencia de la atención domiciliar de enfermería en la evolución del prematuro con alta precoz. *Dipòsit UB*, 146.
5. Isetta, V., Lopez-Agustina, C., Lopez-Bernal, E., Amat, M., Vila, M., Valls, C., ... Farre, R. (2013). Cost-effectiveness of a new internet-based monitoring tool for neonatal post-discharge home care. *Journal of Medical Internet Research*, 15(2), e38. <http://doi.org/10.2196/jmir.2361>