Study [ref]	Themes / Findings (HSU perspective)	Author/Researcher recommendations
Ahtinen 2013 [26]	1. **Be my advisor**: personal trainer that supports and motivates wellness activities 2. **Acknowledge my efforts**: show progress and provide encouraging feedback 3. **Grow with me:** evolve and adapt programs, activities and challenges 4. **Keep me engaged:** introduce new features to retain interest	1. Design of research can be successfully applied to motivate and support wellness activities 2. The four design principles are relevant for motivating physical activity but cultural consideration is required 3. Individual advising, encouraging and evolving as structural components of the program (received well by both cultures) 4. Mobile phones as an important platform for applications in health and wellness. They support: real time data collection; monitoring; analysis of health information; personalisation in wellness application
Antypas 2014 [27]	1. **Social**: companionship, communication with others 2. **Motivation:** ideas and methods influencing the participants' behaviour 3. **Integration to everyday life**: helping participants to integrate a desirable behaviour into everyday life 4. **Information**: access to information after discharge 5. **Planning**: plan physical activity in advance in order to complete 6. **Monitoring and feedback:** keeping and presenting a record of physical activity in meaningful way 7. **Concerns and potential problems**: lack of time, training facilities, literacy	1. Combination of Health Behaviour Theory and user input is a promising design approach 2. Communication design of a website is an essential component of the intervention 3. Both prioritisation and motivation are needed to make sure each participant will be ready to overcome any difficulty 4. Self-efficacy is the most important variable in Social Cognitive Theory. Social variables play several important roles in the stages of behavioural change
Bengtsson 2014 [28, 29]	1. **Framing outcomes in order to self-manage treatment:** a) communicating and understanding high blood pressure and its treatment; b) Perceptions of high blood pressure and its treatment eg trust, good relationship with caregivers and well-being 2. **Measuring outcomes in order to self-manage hypertension:** a) measurement to be followed; b) making use of measuring outcomes e.g. Blood pressure, dizziness, stress, headache and tiredness	1. HSP highlighted accessibility, clear and consistent counseling, complication prevention and educational efforts 2. Importance of follow-up to understand interplay between blood pressure and daily life experiences of patients with hypertension 3. Focus group to be representative of greater population 4. Mobile phone self-report system is reliable to capture information relevant to hypertension self-management
Buccieri 2015 [30]	1. **Welcoming/ safe environment**: meetings took place in the basement of a youth shelter 2. **Combine technology / access and information to empower**: app improve access to information and services 3. **Treat with respect / taken seriously:** potential employment opportunities 4. **Combatting stigmatisation:** homeless youth are capable individuals and not treated as less of a person 5. **Engage in critical analysis and sense of pride**: sense of pride and ownership during the development of the app	1. Restriction on money, time and technological resources meant some ideas not practical 2. Making the program widely accessible by delivering it on a variety of platforms e.g. mobile phone and website 3. Technology improved communication between homeless youth and support workers and created a solution focused environment 4. Research environment created a unique experience for young people 5. Further research needed to understand mobile technology uptake for homeless youth
Clayman 2008 [31]	1. **Easy to understand, relevant information:** information presented under 6 key questions	1. Combining patient, provider and clinical perspective to create an education program that

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	2. **Improve coordination of care, patient- centered information design**: information on website embraced by patients and endorsed by physicians 3. **Limit the overwhelming resources/types of information**: create basic information with a clear and consistent style with appropriate links 4. **Interactive dynamic flowchart**: flowchart that allows women to see the treatment options relevant for their diagnosis	provides clear and accurate information 2. Form: website; immediate access to information and provides level of continuity 3. Process: centrality of patient perspective 4. Content: addressing patients' information and support needs
Cordova 2015 [32]	1. **A mHealth app for adolescents in primary care:** time, place platform and length of program to maintain engagement 2. **Risk assessment to improve clinician-adolescent HIV/STI, drug use communication:** facilitate difficult conversations 3. **Culturally specific HIV/STI, drug use content:** aim to reduce fear and harm, educate 4. **Interactive aspects of the app to engage youth with visual/audio:** games and quizzes to reinforce information 5. **Appearance of the app:** aesthetically appealing, avoiding text heavy sections	1. Community-engaged approach to gather data in primary care 2. Need for secure platform for health information 3. Apps as an effective means of preventing and reducing HIV/STI risk behaviours 4. Include parents in prevention programs and to improve parent-adolescent HIV/STI communication 5. Collect clinician perspective as well as patient perspective 6. MHealth modalities have the potential to facilitate clinician-adolescent HIV/STI and drug use communication
Dabbs 2009 [33]	**1. Use of PATH:** daily use over 2-week period **2. Checklist, logs and graphs:** daily use **3. Normal thresholds set for clinical parameters:** feedback messages generated when values fell outside acceptable range **4. Accessed message history/notes:** at least once ***5.*** **Technical support available:** to support upload of data	**1.** Pilot study determined Pocket PATH superior to conventional methods for self-monitoring after lung transplantation **2.** Further research required to examine utility and functionality of Pocket PATH **3.** Principles of UCD increases the likelihood of success promoting self-monitoring
Das 2013 [34]	1. **Gathered domain knowledge:** understand treatment and workplace environment 2. **Patient trajectory and medical treatment options:** understanding the appropriate stage to implement initiative 3. **Patient education and self-management:** promoted by future e-health solution 4. **Scenario building/patient personas:** provided valuable information on current practice and future solutions 5. **Reflection on user requirements:** insight into personal stories and daily life 6. **Redesign and modification**: medical content and redesign provided by obesity clinic and research team *7.* **Usability testing and reflection:** helpful feedback for final improvement	1. Identify the stakeholders and context of use 2. Include the relevant stakeholders and context of use throughout the design process 3. Conduct homogenous workshops and design activities support participants engagement 4. Particular considerations and facilitation is required when including vulnerable user groups in UCD 5. Conduct usability evaluations as part of the system development process
Davies 2015 [35, 36]	1. **Local language:** accessible with either English or Yolngu Matha 2. **Visual and interactive:** animation and games included	1. Community partnerships and PAR methodologies can break down barriers to communication 2. Value can be gained from repeated reviews of and conversations during development process

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	3. **Tell the full /true story:** back translation conducted with focus on conceptual and cultural equivalence 4. **Accessible:** free download from Apple Store *5.* **Cultural respect:** separate women's section requested	3. Obtaining balance between cultural appropriateness and community wishes versus inclusivity of potentially underrepresented groups
Fennell 2016 [39, 44]	1. **Website acceptability:** reported relevant to their needs, necessary and helpful 2. **Perceived Impact:** reported feeling less distressed and isolated 3. **Accessible:** reported ease of use 4. **Informative:** provided new knowledge	1. Use of technology to deliver health information in rural populations has great potential (wide reach, low cost) 2. Base program upon both literature and lived experience 3. Perceived expertise of authors can predict 'active trust' in online interventions and thus behavioural impact 4. Anonymity of online resource can add to appeal 5. Need for cultural and behavioural appropriateness in context of target audience 6. Improve health literacy for HSU and HSP 7. Employ means of evaluating success of program once administered 8. Large sample size required to represent greater population
Fonda 2010 [40, 41]	Prototype description 1. **Overview:** data repository provides analysis and recommendations based on clinical guidelines 2. **Original Implementation of Gadgets:** iGoogle portal displays the Gadgets based on diabetes self-management 3. **Nutrition and Physical Activity:** logging of meals nutritional information, caloric and physical targets, 4. **Glucose:** displays graph of glucose monitoring 5. **Medications:** generates reminder 6. **"What if Analysis":** feedback on how activity and diet impact on glucose levels 7. **Mood:** plotting mood against glucose levels 8. **Diabetes "Tip of the Day":** users preference in topic area and medium of delivery providing recommendations and reminders 9. **Original Strategy for Retrieving Self-management Data:** data retrieved from user entry and external self-management data	1. PHA interaction must be dynamic in nature, promote discovery and evolve with changes in the user's lifestyle and environment 2. Feedback and recommendation tools should be fresh and contextually and temporally relevant 3. Prototype to be able to: discover causes in the world of the user; infer causes of novel input or recognise behavioural pattern shifts; make predictions; direct behaviour
Goldenberg 2015 [42, 43]	1. Phase 1: education; interactive engagement; social networking; privacy and confidentiality 2. Phase 2: customisation/personalisation with reminders and sex diaryising and authority 3. Design/functionality 4. Perceived impact 5. Relatable vs professional 6. Sharing data 7. Stigma 8. Target population	1. When building a mobile HIV prevention app, interactive and community-centered process to collect data is vital 2. App-based intervention addresses a large and diverse risk group 3. Mhealth interventions should be guided by existing theories of behaviour change 4. Personalisation along with interactive functionality has been found to allow users to take ownership of app (correlative with Social Cognitive Theory of

Study [ref]	Themes / Findings (HSU perspective)	Author/Researcher recommendations
	9. Testing barriers/facilitators 10. Willingness and motivations: easy to use and understand; app promotion and advertising suggested to assist motivation	self-regulation) 5. Building an app takes time and resources
Heckman 2015 [45]	1. Interactive with avatar development 2. Tailored and understandable 3. Utilize multiple media formats 4. Maximize participant engagement	1. Gather input from multi-disciplinary experts and the intended population during the entire development process 2. Use mixed methods to provide the most complete and useful information 3. Plan, manage and revise plans, procedures, the website, and potentially the budget and timeline as the project progresses 4. The project was guided by intervention development and assessment guidelines for behavioural therapy, web-based intervention and health communication programs including heath literacy best-practice
Kelders 2013 [46]	1. **Professional support and feedback:** provide feedback on progress 2. **System:** application needs to be user friendly 3. **Content:** be effective and add value 4. **Service:** receiving care through technology 5. **Peer support:** a need for contact with others using the application	1. Application to encapsulate; holistic view, incorporating system/content/service/perspectives and values of different stakeholders 2. Overlap of user-based and expert-based interventions an important methodological advantage 3. Iterative stage provided insight in the goals and technology that was being developed 4. Involve stakeholders at all stages 5. Wider demographic for the focus group with greater number of participants 6. Long term study to assess effectiveness of program
Lubberding 2016 [37, 38, 47]	1. **Attention paid to symptoms post treatment:** duration, variation and specification of symptoms 2. **Current referral to supportive care:** supportive care services referred; physical therapist, psychology, dietician, dental hygienist 3. **Monitoring quality of care:** feedback about results 4. **Personalised advice:** reliable information tailored to specific symptoms/patient 5. **Supportive care services:** access and availability to a variety of supportive care services	1. Adoption rate of ehealth can be predicted by the way an ehealth application is rated in terms of usefulness, ease of use and self-efficacy 2. Length of application and information overload can increase disconnect 3. Mixed methods provided in-depth insight into feasibility in clinical practice 4. Access was limited to 2 weeks and requires extension of access timeframe
Meyer 2007 [48]	1. Feedback from HSU were reflected in the website updates 2. Satisfied that website is professional, welcoming and positive impact for people 3. Site usage doubled in second year (100,000 visits) with consistent ratings of very or quite useful by HSU	Using SCP produced a far richer more accessible resource by: 1. Externalising language 2. Finding strategies, discussing illness in terms of a habit 3. Debating benefits and drawbacks of illness model of depression 4. Critically evaluating social and cultural influences to provide potential for options 5. Encouraging an activist or resistance position 6. Including stories of lived experienced framed within

Study [ref]	Themes / Findings (HSU perspective)	Author/Researcher recommendations
		strategies
Miller 2015 [49]	1. **Physical function:** practical advice, health concerns, treatment side effect concerns and health behaviours 2. **Emotional wellbeing:** body image, psychosocial issues 3. **Interpersonal concerns:** disruption of relationships with spouse/partner 4. **Practical barriers:** discriminatory workplace practices	1. Self-management focus of PROGRESS offers scalable, psychosocial intervention in addition to clinical care 2. Tailor website to cater to a wider demographic e.g. more language options 3. Address limitation of the information not being systematically collected concerning receipt of hormone therapy 4. Integrate PROGRESS support system with clinical health record to evaluate function 5. Desire for concrete strategies for managing treatment side effects
Morrison 2015 [50]	1. Information relevant and understandable 2. Layout and navigation of pages and sections needed refinement 3. HSP recommendation to support and promote website	1. Multifaceted approach results in online intervention relevant to HSU needs and ease of use 2. Iterative processes allowed website modification of website based on thinking aloud feedback 3. Focus group to be more representative of greater population 4. Qualitative evaluation involving participant interviews and using NPT to observe application in real world 5. Use of LifeGuard software allowed for streamlined and iterative process
O'Brien 2016 [51]	1. **Self-reflection:** in relation to financial, time, social, health and community resources 2. **Personalization:** a flexible intervention with individual feedback and tailored mentor support *3.* **Social relationships**: reduce risks of social isolation, promote a sense of social support and share experiences in an engaging way	1. Co-design techniques involving stakeholders as an effective methodology 2. Further work required to apply web-based lifestyle intervention to other areas of health to refine and build evidence of usability and acceptability 3. Test feasibility and acceptability of LEAP in greater population
Peute 2015 [52]	1. Additional information needed: diagnosis, treatments, late effects, symptoms, therapies, rights as a patient and self-care 2. Discussion boards should be separate from the websites visited by HSP for privacy 3. Communication should be in a conservative manner to focus on reassurance instead of increasing anxiety 4. Navigational issues identified	1. Study findings supported the hypothesis that heuristic evaluation is sufficient for the development of WDMHC 2. Choice of methodologies used for specific phases of development process should be adapted to characteristics and needs of individual projects 3. Recommends live meeting with stakeholders early in development process
Revenas 2015 [53-55]	1. **Content:** up-to-date and evidence-based information and instruction, self-regulation tools and social interaction 2. **Customized options:** personalized set-up 3. **User interface:** attractive design and content 4. **Access and implementation:** access to the internet service and prioritized core features to include in a future internet service	1. The HSU, roles and responsibilities, aims, scope, to be clarified early in the project 2. Video recordings, protocols and naturalistic observations of co-design workshops provided triangulation of data and repeated viewing of videos 3. Consideration required to retain confidentiality due to video recordings 4. Task conflict was observed within the co-design and relied on participants ability to merge their perspectives

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Sandlund 2015 [56]	1. **Balance and joy of movement:** appreciating what this may look like for each individual 2. **Exercise preferences:** experiment with exercises participants liked and disliked 3. **Motivation:** factors that start and continue exercise amongst participants *4.* **Design and development:** how the exercises are presented and to the user interface	1. Important learning generated through the Form-IT and PAAR methodology for HSU and HSP 2. App produced is easily adaptable to future needs and knowledge evolvement 3. Need for inclusion of motivating personalised feedback progressed over time 4. Transform exercises developed for the application into an interactive video game 5. Further evaluation in randomised controlled trials
Schnall 2014 [57]	1. **Information management:** log of past partners 2. **Staying healthy:** HIV information and prevention, diet/fitness 3. **HIV testing:** testing site information, testing log 4. **Chat / Communication:** medical providers, social/peers *5.* **Resources:** support group locations, preventative measures, news	1. ISR framework supports: iterative process, needs assessment, functional requirement identification and user interface design and rapid prototyping 2. Future research required to understand effectiveness of the app and collection of more extensive usage and outcome data 3. Multistage approach is time consuming and costly 4. Iterative nature of framework allows for HSU and HSP feedback
Skjoth 2015 [58]	1. Difficulties in making an informed choice 2. Need for knowledge/information and where to find it 3. No understanding of cut-off values 4. Assessment of available information	1. Using IPDAS standards for developing patient decision aids helped ensure quality of content 2. Combining IPDAS with CeHRes roadmap provided a focused and structured developmental process was 3. Focus group interviews helped provide knowledge and understanding; effective method in the process of developing intervention 4. Important to maintain and update website for sustainability 5. Important to consider website as a supplement to face-face consultations 6. Cater to a greater demographic e.g. other languages
Stinson 2014 [59]	1. **Pain impact**: physical impact, role functioning, social/emotional impact and future 2. **Barriers to care**: healthcare system, patient-specific and societal 3. **Pain management strategies**: support system, pharmacological, physical, psychological 4. **Transition to adult care**: disconnect between pediatric and adult practices, skills needed to transition, parental role, fear and anxiety	1. Rigor of study enhanced by using analyst triangulation 2. Exploring perceptions of youth with chronic pain was crucial in laying foundation for iCanCope with Pain 3. Programs are a complement to professionally delivered health care and do not replace professional services 4. The web-based technology provide a more private, socially acceptable and normalising method of obtaining treatment in a less-stigmatising manner 5. Theoretical rationale supports self-monitoring, goal-setting, engaging with social support and improving health knowledge
Van Bruinessen 2014 [60, 61]	**1.** **Credibility:** information about collaborating parties, help function and privacy issues is missing/unclear **2.** **Functionality:** Print function and use of agenda not clear **3.** **Navigation:** not always clear where you are in	1. IM framework helped decision when to involve patients 2. UCD helped decision how to involve patients 3. Early involvement supported participation of patients 4. Flexibility required to incorporate patient

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	website and log-in button confusing 4. **Information:** some text too formal and inconsistency with terms/jargon 5. **Layout:** illustrative pictures too positive/happy, video clips unclear	viewpoints and experiences and include methodologies that allow dynamics of design such as Participatory Learning and Action Research or Design Inclusive Research
	1. **Design of the site:** color palate and illustration style 2. **Clear wording:** elucidation of key terms **3. Addressing traditional myths** 4. **Emphasis on relationship skills:** including tips for identifying healthy and unhealthy relationships	Strength of project based on: 1. Psychological and health behaviour change theories 2. Focus on communication as central organising construct 3. Targeted audience with teen advisory board 4. Iterative approach to development 5. Usability testing with revision at several points in the process
Winterling 2016 [63-66]	1. **Information:** facts about treatments, side-effects and symptoms 2. **Content:** related to bodily changes or body image targeted at young cancer patients 3. **Exercises:** types of exercises, time dedicated to them, usefulness and reliability considered 4. **Language:** inclusive, easily comprehensible language matching a broad group of end users 5. **Awareness:** of participants' cancer experiences; include other patients' stories 6. **Feedback**: e-mail reminders, timeline, interactive quizzes 7. **Communication:** discussion forum and counseling *8.* **Appropriateness:** addressing a diversity of sexualities, ethnicities, relationships and ways of building a family	1. Long-term collaboration over 5 years with Patient Research Partners (PRP) was highly successful 2. The system quality was improved by PRP feedback on design, technical malfunctions, and navigation on the website 3. PRP input made the content of Fex-Can meaningful, relevant and understandable. 4. Strategies to enhance PRP engagement included: a) One person central contact b) Established expectation of PRP roles c) PCP seen as experts on patient perspective d) Compensation for PRP time and expenses e) Researcher and PRP reached common agreement
Ennis 2014 [67, 69]	1. **Information:** information about care, medication and side-effects 2. **Self-management:** monitoring own health and wellbeing 3. **Confidentiality:** sensitivity and security of information 4. **Social:** connected and interactive; allowing contact with clinician and others through social networking *5.* **Presentation:** simple, minimal interface	Four key considerations for future developers of ehealth are: 1. Appeal – currently developing secure conference facilities for appointment scheduling and viewing test results 2. Construction - considering shared health information that is moderated in a secure way 3. Ease of use – clarity of navigation is critical with an intuitive system 4. Implementation – shift in attitudes is required for implementation in clinical practice and allay resistance and improve utility
Fleisher 2014 [68]	1. **Prepared me to ask questions:** preparing patients with questions prior to clinical trials 2. **Formatting:** easy to read, simple, not overwhelming 3. **Videos:** inclusion of videos to be short and informative 4. **Language:** easy to understand, caters to all education levels 5. **Informative:** informational without being boring, empowers decision making, helpful	1. HSU's perspectives need to be from early stage from conceptualization, development of scripts and selection of actors 2. Collaborative process is labour and time intensive process 3. Importance of creating interesting, multi-media approaches to engage patients in a serious and difficult topic 4. Multi-disciplinary team valuable to develop a theory-based sophisticated tool to assist decision

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	6. **Convenient:** being able to access at home 7. **Reassurance and hope:** comforting, inspire a sense of curiosity, empowerment 8. **Number of questions:** shorter and less questions 9. **Technicalities:** ensuring technical issues i.e. videos not loading, are minimised 10. **Tailoring**: tailor program to patients' background	making