

如何利用 REDCap 建立前瞻性队列研究数据库

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【摘要】数据质量是临床研究的核心，一个好的数据采集管理系统可以让研究事半功倍。传统的数据采集管理方式已不能满足目前临床研究的需要，电子化的数据采集管理系统日益受到推崇。REDCap是全世界医学研究者使用最广泛的电子数据采集管理系统。它具有免费、简单易学、安全可靠和功能强大等优点。本文将从一个临床医生的角度，介绍利用REDCap建立一个前瞻性队列研究数据库的具体操作方法。

【关键词】 REDCap; 队列研究; 数据采集; 数据管理; 数据库

How to use REDCap to establish a prospective cohort study database Dai Wei*, Zhang Yuanqiang, Feng Wenhong, Mu Yunfei, Zhang Rui, Liao Xiaoqing, Xie Shaohua, Wei Xing, Wang Yaqin, Li Qiang, Yang Xiaojun, Shi Qiuling. *Department of Thoracic Surgery, Sichuan Cancer Hospital, School of Medicine, University of Electronic Science and Technology of China, Chengdu 610041, China.

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【Abstract】 Data quality is the core of clinical research. A good data collection and management system enables the research yield twice of the result with only half the effort. Traditional data collection and management methods can no longer meet the current clinical research requirements. Electronic data collection and management systems are gaining popularity. REDCap is the most widely used electronic data collection and management system for medical researchers worldwide. It is a free, easy to learn, safe, reliable, and powerful tool. From the perspective of a clinician user, this article will introduce the specific operation procedures for establishing a prospective cohort study database using REDCap.

【Key words】 REDCap; Cohort study; Data collection; Data management; Database

基金项目：四川省科技厅项目(2019YFH0070);国家自然科学基金面上项目(81872506)

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REDCap(Research Electronic Data Capture)本质上是一个电子数据采集管理系统，由美国范德堡大学的保罗·哈里斯(Paul Harris)教授团队于2004年开发，并免费提供给全世界的研究机构非商业性使用^[1-10]。截至2020年2月11日，REDCap在全世界135个国家、3937个机构中运行管理着84.4万个研究项目^[11]。国际著名的医学中心，比如梅奥诊所、MD安德森癌症中心等都在全机构推广使用REDCap。但是国内研究者对REDCap知晓者甚少，目前仅127个机构在使用REDCap，且绝大多数都是以课题组或科室的名义在使用^[9,10,12-15]。

数据库建设是目前国内医疗机构的一个热点话题，同时也是一个痛点和难点。国内大部分医疗中心都缺乏自己常态化管理的科研数据库^[16]，一方面可能是由于医务人员临床工作繁忙，另一方面可能与国内尚缺乏一个可及、好用的平台有关。数据质量是临床研究的核心，一个好的数据采集管理平台可以让研究事半功倍。2017年底，我们课题组引入了REDCap，以对临床科研数据进行标准化和规范化。本文将结合作者2年多的REDCap使用经验，从一个临床医生的角度，介绍利用REDCap建立一个前瞻性队列研究数据库的具体操作方法，旨在为其他研究的数据库建立提供参考。

1 示例数据库介绍

本文将以2019年我们团队发表的“基于患者报告结局的肺癌患者围手术期症状管理：一项多中心、前瞻性、观察性队列研究方案”(NCT03341377)为例^[17]，介绍该方案的研究数据库的建立过程。该研究包括传统临床数据和患者报告结局(Patient-Reported Outcome, PRO)数据的采集，共有12个数据采集表单，分别为：人口统计学资料、术前临床特征、手术、麻醉、术后恢复、围手术期并发症、疼痛管理、肺癌症状调查表、生活质量调查表、症状及日常功能变化量表、完成入组信息和随访。其中，肺癌症状调查表、生活质量调查表和症状及日常功能变化量表为PRO数据采集量表。肺癌症状调查表和生活质量调查表的采集时间点为：术前、术后每天至出院(术后 ≤ 14 天)、出院后每周至第4周(± 3 天)或术后抗肿瘤开始时。该研究设计为多中心、前瞻性、观察性队列研究，共有6个中心参与。该研究从2017年底开始入组病例，目前已经完成病例入组。

2 数据库建立过程

2.1 创建新项目

操作：机构引入REDCap^[10]→向管理员申请REDCap账号和密码→登陆REDCap→点击左上角+New Project(添加新项目)→输入Project title(项目名称)、

Purpose of this project (项目目的)和Please specify (指定项目类型)→Start project from scratch or begin with a template?(从头开始或使用模板?)→选择Use a template (choose one below)(使用一个模板)→选择Longitudinal Database (1 arm)(单臂纵向数据库)或已有研究共享的模板。如图1所示。

注意：Project title、Purpose of this project、Please specify和Start project from scratch or begin with a template?4项是必填，其他项目是选填，后续在Main project settings(主要项目设置)也可以随时修改。对于初学者，建议选择模板，然后在模板上按照自身课题的需要进行修改，这样可以更直观和省时省力。

2.2 设计数据采集表单

2.2.1 常规操作方式

操作：Project Setup(项目设置)界面→Design your data collection instruments(设计你的数据采集表单)→Online Designer(在线设计器)→已有的模板表单或Create(新建表单)或Upload(上传外部来源的ZIP格式表单)进行Choose action(选择操作)→Rename(重命名)、Copy(复制)、Delete(删除)、Download instrument ZIP(下载表单为ZIP格式)→点击进入需要设计的表单(如Demographics/人口统计学资料)→点击已有条目左边铅笔符号进入编辑(Edit)或Add Field(添加条目)→设计条目界面，大多有6个必填项：Field Type(条目类型)、Field Label(条目标签)、Variable Name(变量名)、Required?(是否为必填)、Identifier?(是否为身份标识符)、Custom Alignment(自定义排列)。如图2和图3所示。

注意：一般将在相同时间点采集的数据条目设计到一个表单。表单里面可实现的高级功能包括：自动计算^[18]、分支逻辑^[19]、日历提醒^[19]、重复测量^[20]、随机化操作^[21]、数据质疑^[22]、数据锁定^[22]和外接第三方应用程序^[23]等，具体操作详见上标所列的参考文献。

2.2.2 共享知识库导入方式

操作：Project Setup(项目设置)界面→Design your data collection instruments(设计你的数据采集表单)→REDCap Shared Library(REDCap共享知识库)或Online Designer(在线设计器)之Import(导入)→Keyword search(关键词搜索，以quality of life为例)→点击适合的表单→Import into my REDCap project(导入我的项目)→Online Designer(在线设计器)界面可看到导入的表单。如图4所示。

注意：REDCap共享知识库是数据采集表单(包括各种量表)的存储库，查找后的表单可以直接导入自己的项目中。但是有的量表由于版权问题，可能查找不到。

这时候需要联系版权方购买版权，取得量表后，再行导入。如果量表不能直接导入，建议在REDCap Shared Library搜索一个类似的量表，然后在其基础上进行修改。

2.3 定义事件时间点和关联表单

操作：Project Setup(项目设置)界面→点击Define My Events(定义我的事件时间点)→输入时间点名称和标签(比如Admission/A1-入院当天、POD 0-手术当天、POD 8-术后8天等)后点击Add new event(添加新事件)→点击Designate Instrument for My Events(关联表单和事件时间点)→Begin Editing(开始编辑)→打勾后点击Save。如图5和图6所示。

注意：在纵向数据收集中，每个表单都需要关联事件时间点，否则在数据录入界面不会出现录入路径。

2.4 添加用户和分权分组

操作：Project Setup(项目设置)界面→点击User Rights(用户权限)→Add new users(添加新用户)→输入用户名→Add with custom rights(添加并分配权限)→点击Add user(添加用户)→Data Access Groups(数据访问分组)→Create new groups(创建新分组)→输入新组的名称(需英文字符)→Add Group(添加分组)→Assign user to a group(分配用户到对应的组)。如图7和图8所示。

注意：只有在管理员那里申请了账号的用户，才能在项目中被添加。Project Design and Setup(项目设计与设置)、User Rights(用户权限)和Data Access Groups(数据访问分组)是系统最高权限，数据导出(Data Exports)是核心权限，不要轻易授权。在多中心研究中，一个组对应一个中心，每个组的用户只能访问本中心的数据。如果一个用户没有被分组，那他可以访问所有中心的数据。

2.5 测试数据库

2.5.1 录入数据测试

操作：点击左边Add / Edit Records(添加/编辑病例)→Add new record(添加新病例)→点击相应表单和时间点对应的灰色圆圈→进行数据录入→发现错误或界面欠佳→回到2.2的表单设计界面进行修改。如图9所示。

注意：让团队核心成员均参与，完整录入所有表单的数据进行测试。

2.5.2 导出数据测试

操作：点击左边Data Exports, Reports, and Stats(数据导出、报告和统计)→导出All data(所有数据)或Selected instruments and/or events(选择性的表单或时间

点)→点击Export Data(导出数据)→Choose export format(选择导出格式)。如图10所示。

注意：如果数据用于线上传播或者共享，需去掉患者的所有隐私信息，可通过导出时勾选“Remove all tagged Identifier fields”（删除所有标记标识符的条目）实现。前提是在2.2表单设计阶段，隐私信息所在条目的身份标识符(Identifier?)需勾选Yes。

2.6 项目转入正式启用

操作：Project Setup(项目设置)界面最下面→点击Move project to production(将项目转为正式启用状态)→Keep existing data or delete? (保留或删除存在的数据?)→Yes, Request Admin to Move to Production Status(是的，请求管理员审核通过)。如图11所示。

注意：研究者也可选择不Move project to production(将项目转为正式启用状态)，而一直保持在Development(开发)状态，这对功能没有影响。保持在开发状态的好处是，研究者对数据库设计方面的修改会实时生效，而不需要等待机构管理员的审核。

3 讨论

本文是一篇介绍利用REDCap建立一个数据库全过程的文章。REDCap的功能十分强大，本文没有面面尽述，具体每个功能可参考REDCap自带的Help & FAQ(帮助及常见问题)、Training Videos(培训视频)和所引用的中文文献^[10,18-26]。笔者仅从一个临床科研使用者的角度出发，希望读者能掌握REDCap最基本的功能，然后以最简单的方式快速建立一个能满足自身实际要求的数据库。我们选用“观察性症状队列研究”为示例的原因在于：一是症状研究是相对比较复杂的，不仅涉及了传统的临床数据采集，还涉及了纵向多时间点的PRO数据采集；二是观察性队列研究是最贴近临床科室建立专病数据库的研究设计方法。

REDCap界面友好，简单易行，但是要建立一个高质量且可持续发展的数据库，还是需要耗费一定的时间。上述示例研究是我们采用REDCap建立的第一个数据库，前后共花费近一个月的时间。其主要时间花在病例报告表的设计上面，如果能利用已有类似研究的模板，将节省很多时间。在研究的顶层设计阶段，我们建议将数据库尽量设计得“大而全”且符合国际规范，而不要仅仅局限于当前的研究。比如上述示例研究中，共设计了12个表单^[17]，270个条目，但当前能用到的条目大约100个。最初设计的随访时间为出院后4周，但是随后我们将随访时

间延长至术后5年，这样就轻易变为一个可长期随访的大而全的专病数据库了。在研究的具体实施阶段，我们建议数据录入“小而精”，只需针对当前的研究。在示例研究中，我们只录入了大约100个条目，其他当前研究未涉及的条目，比如“麻醉”表单中的相关条目，我们就暂时没有录入，留着等后续课题需要时再录入。这样做既能保证当前课题所需数据尽快地收集完成，又能避免当前课题结束后，该数据库就停滞或作废。

REDCap是全英文界面，这可能不符合一些国人的使用习惯。REDCap支持中文字符或可以完全转换为中文版本，但我们还是建议使用英文界面，然后将数据库设计为中英文双语。这样做既能符合国人的习惯，又能做到国际接轨，为将来承担国际多中心合作课题提前做好准备。但是，中英文双语数据库可能在数据输出到专业统计软件(如SAS、SPSS等)，因中文显示原因易出现乱码，从而会增加后续分析人员的工作量。在国内，对于普通临床研究人员来说，REDCap的另一个劣势在于：导出后的数据通常需要专业的分析人员协助处理，特别是对于较为复杂的数据库。相比而言，在国外，大多数科研机构都有自己专门的数据分析团队，临床研究人员只需要专注于研究的实施。如果上述问题能够得到妥善的解决，那么，REDCap对于提升临床研究质量和效率的作用必将能得到进一步充分的体现。

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Create a new REDCap Project

You may begin the creation of a new REDCap project on your own by completing the form below and clicking the Create Project button at the bottom.

Project title:

Title to be displayed on project webpage

Purpose of this project:

How will it be used?

Name of P.I. (if applicable):

First name MI Last name

Email of P.I. (if applicable)

Name of P.I. as cited in publications (if applicable): (e.g., Harris PA)

IRB number (if applicable):

Please specify:

☐ Basic or bench research

☒ Clinical research study or trial

☐ Translational research 1 (applying discoveries to the development of trials and studies in humans)

☐ Translational research 2 (enhancing adoption of research findings and best practices into the community)

☐ Behavioral or psychosocial research study

☐ Epidemiology

☐ Repository (developing a data or specimen repository for future use by investigators)

☐ Other

Project notes (optional):

Comments describing the project's use or purpose that are displayed on the My Projects page.

Start project from scratch or begin with a template?

☐ Create an empty project (blank slate)

☐ Upload a REDCap project XML file (CDISC ODM format) ?

☒ Use a template (choose one below)

<input checked="" type="radio"/>	Longitudinal Database (1 arm)	Contains nine data entry forms (beginning with a demography form) for collecting data longitudinally over eight different events.
<input type="radio"/>	Longitudinal Database (2 arms)	Contains nine data entry forms (beginning with a demography form) for collecting data on two different arms (Drug A and Drug B) with each arm containing eight different events.
<input type="radio"/>	Multiple Surveys (classic)	Contains three surveys and a data entry form. Includes a pre-screening survey followed by two follow-up surveys to capture information from the participant, and then a data entry form for final data to be entered by the study... Show more

图2 设计数据采集表单 (Instrument)

Project Home

Project Setup

Online Designer

Data Dictionary

Create snapshot of instruments

VIDEO: Ho

Last snapshot: 2020-02-02 13:12:33

The Online Designer will allow you to make project modifications to fields and data collection instruments very easil
your web browser. NOTE: While in development status, all field changes will take effect immediately in real time.

Data Collection Instruments

Survey options:

Survey Queue

Survey Login

Survey Notifications

Add new instrument:

Create

Import

Upload

Instrument name	Fields	View PDF	Enabled as survey	Instrument actions	Survey
Demographics/人口统计学资料	26		Enable	Choose action	
Preoperative Characteristics/术前临床特征	34		Enable	Rename	
Surgery/手术	17		Enable	Copy	
Anesthesia/麻醉	41		Enable	Delete	
Postoperative Care/术后恢复	32		Enable	Download instrument ZIP	
Perioperative Complications/围手术期并发症	11		Enable	Choose action	
Pain Management/疼痛管理	29		Enable	Choose action	
MDASI-LC/肺癌症状调查表	34		Enable	Choose action	
Quality of Life Scale/生活质量调查表	6		Enable	Choose action	
Symptom and Daily Functioning Change Scale/症状及日常功能变化量表	8		Enable	Choose action	
Completion Data/完成入组信息	8		Enable	Choose action	
Follow-up/随访	12		Enable	Choose action	

图3 设计表单里面的条目(Field)

Edit Field

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will be added to the form on this page. For an overview of the different field types available, you may view the [Field Types video \(4 min\)](#).

Field Type:

Text Box (Short Text, Number, Date/Time, ...)▼

Field Label

Admission Date/入院日期

Action Tags / Field Annotation (optional)

Learn about [@ Action Tags](#) or [using Field Annotation](#)

Variable Name

admission_date

ONLY letters, numbers, and underscores

☒ Enable auto naming of variable based upon its Field Label?

How to use

Smart Variables

Piping

Validation? (optional)

Date (Y-M-D)▼

Minimum:

Maximum:

– OR –

-- select ontology service --▼

Required?*

☐ No ☒ Yes

* Prompt if field is blank

Identifier?

☒ No ☐ Yes

Does the field contain identifying information (e.g., name, SSN, address)?

Custom Alignment

Right / Vertical (RV)▼

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Save

Cancel

图4 通过共享知识库导入表单

Return to REDCap

Logged in as **Davii Doctor** (Sichuan Cancer Hospital)

Keyword search:

quality of life

Search the library

Search options:

Language: - All -

Minimum downloads: 0

Recent additions: show all

Curated by REDLOC? show all

Shared Library

Search

Library Metrics

My Activity

Institution Activity

Consortium Activity

REDLOC

REDLOC Login

1 2 3 4 5 6 7 8 9 >>

Found 169 results matching your search

Didn't find what you were looking for? [Suggest a validated instrument for library inclusion](#)

Title	Downloads
➤ BRFSS 2009 Section 2: Healthy Days Health-Related Quality Of Life ★	139
▼ Constipation Related Quality Of Life CRQOL ★	11
<div><div>Details:</div><div><div><div>Institution:</div><div>REDLOC</div></div><div><div>Contact:</div><div>Brenda Minor</div></div><div><div>Contact email:</div><div>brenda.minor@vumc.org</div></div><div><div>Submitted by:</div><div>Brenda Minor</div></div><div><div>Description:</div><div>Few existing measures assess constipation-specific quality of life. This study sought to develop a valid and reliable quality-of-life measure for constipation.</div></div><div><div>Acknowledgement:</div><div>Wang JY, Hart SL, Lee J, Berian JR, McCrea GL, Varma MG. Dis Colon Rectum. 2009 Aug;52(8):1434-42. doi: 10.1007/DCR.0b013e3181a51196.</div></div><div><div>Last updated:</div><div>May 29, 2018</div></div></div><div><div><div>View as web page</div><div>View as PDF</div><div>Import into my REDCap project</div></div></div></div>	
➤ Fecal Incontinence Quality of Life Scale ★	88





















图5 设定事件时间点(Event)

Arm 1: Arm 1

+Add New Arm

Arm name: Arm 1

[Rename Arm 1](#)

	Event #	Event Name	Custom Event Label (optional)	Unique event name (auto-generated)
 	1	Admission/A1	入院当天	admissiona1_arm_1
 	2	Pre-operation/A2	术前3天内	preoperationa2_arm_1
 	3	POD 0	手术当天	pod_0_arm_1
 	4	POD 1	术后1天	pod_1_arm_1
 	5	POD 2	术后2天	pod_2_arm_1
 	6	POD 3	术后3天	pod_3_arm_1
 	7	POD 4	术后4天	pod_4_arm_1
 	8	POD 5	术后5天	pod_5_arm_1
 	9	POD 6	术后6天	pod_6_arm_1
 	10	POD 7	术后7天	pod_7_arm_1
<div>Add new event</div>	<div>POD 8</div>	<div>术后8天</div>		

Descriptive name for this event

Custom Event Label (optional)
Example: [visit_date], [weight] kg

图6 关联表单和事件时间点

Project Setup

Define My Events

Designate Instruments for My Events

Since you have defined multiple events on the [Define My Events](#) page, you may now select which data collection instruments that you wish to utilize for each event by using the table below. This allows you to enter data on any data collection form multiple times for any given project record. Any and all data collection instruments can thus be used for any event defined.

Click the [Begin Editing](#) button to change the relationships below by designating which forms you wish to utilize for which events. When you are finished making changes, click the [Save](#) button to finalize your changes.

Upload or download instrument mappings

Begin Editing

Save

Select All

Deselect All

Data Collection Instrument	Admission/A1 (1)	Pre-operation/A2 (2)	POD 0 (3)	POD 1 (4)	POD 2 (5)	POD 3 (6)	POD 4 (7)	POD 5 (8)	POD 6 (9)	POD 7 (10)	POD 8 (11)	POD 9 (12)	POD 10 (13)	POD 11 (14)	POD 12 (15)	POD 13 (16)	POD 14 (17)	Discharge 0 (18)	Discharge W1 (19)
Demographics/ 人口统计学资料	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preoperative Characteristics/ 术前临床特征	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surgery/手术	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anesthesia/麻醉	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Postoperative Care/术后恢复	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perioperative Complications/ 围手术期并发症	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pain Management/ 疼痛管理	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MDASI-LC/肺癌 症状调查表	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

图7 添加用户和分配权限

Adding new user "libo"

Basic Rights

Expiration Date

(Y-M-D)

Highest level privileges:

Project Design and Setup

User Rights

Data Access Groups

Privileges for data exports (including PDFs and API exports), reports, and stats:

Data Exports

No Access

De-Identified*

Remove all tagged Identifier fields

Full Data Set

* De-identified means that all free-form text fields will be removed, as well as any date/time fields and Identifier fields.

Add/Edit/Organize Reports

Also allows user to view ALL reports (but not necessarily all data in the reports)

Stats & Charts

Other privileges:

Survey Distribution Tools

Calendar

Data Entry Rights

NOTE: The data entry rights *only* pertain to a user's ability to view or edit data on a web page in REDCap (e.g., data entry forms, reports). It has no effect on data imports or data exports.

	No Access	Read Only	View & Edit
Demographics/人口统计学资料	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Preoperative Characteristics/术前临床特征	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Surgery/手术	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Anesthesia/麻醉	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Postoperative Care/术后恢复	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Perioperative Complications/围手术期并发症	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Pain Management/疼痛管理	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
MDASI-LC/肺癌症状调查表	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

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图8 用户分组管理

Create new groups: Add new data access groups to which users may be assigned.

Sichuan Cancer Hospital

Add Group

Assign user to a group: Users may be assigned to any data access group.

Assign user

weixing (Xing Wei)

to

Sichuan Cancer Hospital

Assign

Data Access Groups	Users in group	Number of records in group	Unique group name (auto-generated)	Group ID number	Delete group?
Dazhu County People's Hospital	liaoqiaoqing (Xiaoqing Liao)	7	dazhu_county_peopl	7	✖
Jiangyou People's Hospital	fengwenhong (Wenhong Feng)	14	jiangyou_peoples_h	6	✖
Sichuan Cancer Hospital	weixing (Xing Wei), xieshaohua (Shaohua Xie), liaoqia (jia liao), yangxiaojun (xiaojun yang), wangyaqin (yaqin wang)	450	sichuan_cancer_hos	1	✖
The Seventh People's Hospital of Chengdu	zhangrui (Rui Zhang)	8	the_seventh_people	9	✖
The Third People's Hospital of Chengdu	muyunfei (Yunfei Mu)	20	the_third_peoples	8	✖
Zigong First People's Hospital	zhangyuanqiang (Yuanqiang Zhang)	13	zigong_first_peopl	5	✖

图9 数据录入界面

Record "1" is a new Study ID/受试者编号. To create the record and begin entering data for it, click any gray status icon below.

The grid below displays the form-by-form progress of data entered for the currently selected record. You may click on the colored status icons to access that form/event. If you wish, you may modify the events below by navigating to the Define My Events page.

Legend for status icons:

Incomplete

Incomplete (no data saved) ?

Unverified

Complete

Partial Survey Response

Completed Survey Response

NEW Study ID/受试者编号 1

Data Collection Instrument	Admission/A1	Pre-operation/A2	POD 0	POD 1	POD 2	POD 3	POD 4	POD 5	POD 6	POD 7	POD 8
Demographics/人口统计学资料	<div></div>										
Preoperative Characteristics/术前临床特征		<div></div>									
Surgery/手术			<div></div>								
Anesthesia/麻醉			<div></div>								
Postoperative Care/术后恢复											
Perioperative Complications/围手术期并发症											
Pain Management/疼痛管理											
MDASI-LC/肺癌症状调查表	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Quality of Life Scale/生活质量调查表	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Symptom and Daily Functioning Change Scale/症状及日常功能变化量表											
Completion Data/完成入组信息											
Follow-up/随访											

点击进入

图10 数据导出界面

Exporting "All data (all records and fields)"

Select your export settings, which includes the export format (Excel/CSV, SAS, SPSS, R, Stata) and if you wish to perform de-identification on the data set.

Choose export format

CSV / Microsoft Excel (raw data)

CSV / Microsoft Excel (labels)

SPSS Statistical Software

SAS Statistical Software

R Statistical Software

Stata Statistical Software

CDISC ODM (XML)

De-identification options (optional)

The options below allow you to limit the amount of sensitive information that you are exporting out of the project. Check all that apply.

Known Identifiers:

☐ Remove all tagged Identifier fields (tagged in Data Dictionary)

☐ Hash the Record ID field (converts record name to an unrecognizable value)

Free-form text:

☐ Remove unvalidated Text fields (i.e. Text fields other than dates, numbers, etc.)

☐ Remove Notes/Essay box fields

Date and datetime fields:

☐ Remove all date and datetime fields

— OR —

☐ Shift all dates by value between 0 and 364 days (shifted amount determined by algorithm for each record) [What is date shifting?](#)

[Deselect all options](#)

Additional export options

☒ Export Data Access Group name for each record (if record is in a group?)

☒ Export survey identifier field and survey timestamp field(s)?

Advanced data formatting options

Set CSV delimiter character

Set the delimiter used to separate values in the CSV data file (only valid for CSV Raw Data and CSV Labels export formats):

, (comma) - default

Force all numbers into a specified decimal format?

You may choose to force all data values containing a decimal to have a specified decimal character (comma or period/full stop). This will be applied to all calculations and number-validated text values in the export file.

Use fields' native decimal format (default)

NOTE: Your data formatting selections above will be remembered in the future and will be pre-selected upon your next export.

Export Data

Cancel

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图11 项目转入正式启用

Request Admin to Move to Production Status?

Are you sure you wish to leave the DEVELOPMENT stage? If you proceed, the project will be moved to PRODUCTION status so that real data may be collected. If you select the 'Delete ALL data' option below, all current collected data, calendar events, and uploaded documents will be deleted, otherwise all will remain untouched as the project is moved to production.

★ Have you checked the [Check For Identifiers](#) page to ensure all identifier fields have been tagged?

Keep existing data or delete?

☐ Keep ALL data saved so far.
 ☐ Delete ALL data, calendar events, documents uploaded for records/responses, survey responses (if applicable), and any logging events pertaining to data collection.

Once in production, you will not be able to edit the project fields in real time anymore. However, you can make edits in Draft Mode, which will be auto-approved or else might need to be approved by a REDCap administrator before taking effect.

NOTE:
 Since only REDCap administrators can move a project to production, clicking the button below will send a request to a REDCap admin, who will move it to production status for you. An email will be sent to your address (davii-i@126.com) when this has been done.

Yes, Request Admin to Move to Production Status

Cancel