

# Healthy Futures:

## Moving beyond pediatric obesity

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**TWO RIVERS**  
Family Health Team



# Outline of Today's Session

- Getting Started: Rationale & Evidence
- Roles and Responsibilities
- Stakeholders
- Long and short term goals
- Assessing resource availability
- Timelines
- Program Algorithm
- EMR custom form and evaluation criteria
- Next Steps



# Healthy Futures Program Objective

To develop, implement, and evaluate a program at Two Rivers FHT targeted at providing nutrition screening, education and health teaching to families, in order to prevent the onset of chronic diseases related to poor eating habits and sedentary lifestyle.



# Rationale & Evidence

- Request from team and identified need for more formalized program for pediatrics – gap in services (only 5% of referrals to RD were for pediatrics, but physicians identifying a larger need)
- Gap in service identified within the FHT between 18-month visit and school age visit for immunizations
- Focus on Pediatric obesity by Ministry of Health (eg. Healthy Kids Panel)



# Rationale & Evidence

- Canadian Health Measures Survey (2012) showed that 1/3 of children ages 5 to 17 were overweight or obese
- Heart and Stroke Report on the Health of Ontario's Kids (2009) showed only 13% of children between 6-12 years old were eating 5+ servings of vegs/fruits per day
- The Canadian Community Health Survey (CCHS, 2004) found that children between the ages of 4-8 years were having less than the recommended intake for vegetables, fruit and milk products.
- The NutriSTEP study (2005) of almost 500 preschoolers found that a large percentage of 3-5 year olds were below recommended intakes for fruits and vegetables, milk, and meat, and 8-13% of children were having fast foods more than 2 times per week.



# Getting Started

- Our hypothesis: Screening all children will yield better results, have further reach and will be much more inclusive & comprehensive
- ‘First do no harm’ approach:

*“...Weight seems to dominate current initiatives directed at children and youth and the long-term impacts of a weight-focused approach must be considered against a health-focused approach. In a weight-focused approach, there is potential to do more harm than good (e.g. long-term risk for developing disordered eating, impacts on body image and self-esteem). Moreover, normal weight children may also have unhealthy behaviours while obese children may have healthy behaviours. The Canadian Measurements Survey does not support that obese children are any less active than their normal weight counterparts’*

Northern Health Position on Health, Weight and Obesity (July, 2012)



# Timeline

- January 2011:
  - The concept of a Healthy Futures Program was approved and the working group was formed.
- First meetings of working group:
  - Develop Terms of Reference
  - Develop program algorithm
  - Search for target population
  - Assess resource availability
  - Identify stakeholders



# Healthy Futures Working Group

- Registered Dietitian (Program Lead)
- Registered Nurse (to act as liaison with nurses in the program)
- CDM Coordinator
- Administrative Assistant for the Program
- Physician(s)
- Health Promoter





# Program Management

- Quarterly working group meetings
- Regular meetings/updates to nurses in the program
- Dissemination of information by:
  - Communication to larger FHT team with updates at FHT-wide retreats and in the FHT newsletter
  - Stats/searches run on a quarterly basis and reported to CDM Steering Committee
  - Annual report presented to CDM Steering Committee and Board of Directors

# Stakeholders

Stakeholders	What activities and/or outcomes of this program matter most to them?
FHT management	<ul style="list-style-type: none"><li>• Cost effectiveness</li><li>• Good use of resources</li></ul>
Directors/Physicians	<ul style="list-style-type: none"><li>• Positive patient outcomes</li><li>• Improvement in health status</li><li>• Effective use of resources</li></ul>
Providers	<ul style="list-style-type: none"><li>• Efficient process</li><li>• Positive patient outcomes</li></ul>
Ministry of Health and Long Term Care	<ul style="list-style-type: none"><li>• Positive clinical outcomes</li></ul>
Patients	<ul style="list-style-type: none"><li>• Pleasant experience</li><li>• Worth their time</li></ul>



# Assess resource needs

- **Population searches** – What is our population?  
How many 3 year olds are in the practice?
- **Nursing time** – How many FTE's can we dedicate?
- **Increased RD referrals** – Increase of referrals for pediatrics to RD from 5% to 10% since program started
- **Social work required ad hoc** – MSW uses open access time for consultation required in Healthy Futures

## Flow Chart for 3 year old Healthy Futures Visit – BP-for-height and BMI-for-age

Developed by: Two Rivers FHT, April 2011

*Note: referral flow to providers, for BMI-for-age, blood pressure-for-age, and nutri-step score can occur simultaneously depending on risk levels.*

All 3 year olds to be booked with RN/RPN for 30 min visit.

Components of the visit include: Measure weight, height, calculate BMI-for-age, blood pressure, complete and score the Nutri-step nutrition screen

If BP is unable to read, the nurse documents 'unable to read' in drop down on custom form. If the patient is otherwise low risk, the nurse will book the patient in 3 months for a 10 minute BP check within the Healthy Futures schedule. At that visit, the nurse will document blood pressure in the form of a free text note.

If BMI-for-age is <3<sup>rd</sup> percentile, provide information package and refer to RD for assessment. RD to refer to physician as needed.

If BMI-for-age is between the 3<sup>rd</sup> and 97<sup>th</sup> percentile, provide education and information package. Advise to book follow up as needed.

If BMI-for-age is 97<sup>th</sup> – 99.9<sup>th</sup> percentile, provide information package, refer to the group session if appropriate and follow up in 3 months to re-assess.

If BMI-for-age is >99.9<sup>th</sup> percentile, refer to physician for obesity assessment. Referral to RD.

If BP-for-height is >90<sup>th</sup> percentile, refer to physician for further blood pressure assessment.

Offer individual session with RD or Group session co-facilitated by RD and exercise specialist for parents only (no groups currently scheduled).

Meet with nurse at 3 months for follow up. Refer to physician for assessment as needed.

Physician to follow protocol for pediatric obesity assessment. Ongoing follow up with physician/RN as needed. Referral to RD as needed. Referral to SW as needed.

## Flow Chart for 3 year old Healthy Futures Visit – Nutri-Step

Developed by: Two Rivers FHT, April 2011

**Note:** referral flow for BMI-for-age, blood pressure-for-age, and nutri-step score occurs simultaneously depending on risk levels.

All 3 year olds to be booked with RN/RPN for 30 minute visit.

Components of the visit include: Measure weight, height, calculate BMI-for-age, blood pressure, complete and score the Nutri-step nutrition screen

If nutri-step score is <20 (low risk), provide parents/caregiver with education package. Advise to book follow up as needed.

If nutri-step score is between 21-25 (moderate risk), provide parents/caregivers with educational package. Refer to group session (if not appropriate for group, can refer for individual RD session; or if no groups scheduled, offer individual RD appointment). Provide any other appropriate handouts from resource database on shared documents.

If nutri-step score is >26 (high risk), provide parents/caregivers with educational package. Refer to RD for individual assessment. Provide any other appropriate handouts from resource database on shared documents.

Group session is co-facilitated by RD and exercise specialist for parents only. Offer individual RD assessment if no groups scheduled.

Assessment and on-going follow up with RD as needed.

Meet with nurse at 3 months follow up, complete nutri-step, height, weight, BMI-for-age again. Follow up as needed.

Meet with nurse at 3 months for follow up, complete nutri-step, height, weight, BMI-for-age. Follow up as needed.



# Timeline

- January/February 2011:
  - Develop custom form for intake and physicians custom form
  - Gather and review resources and load to shared drive
  - Order hard copies of resources



# Data Entry - Intake

- Values are entered into patient chart in a custom form:
  - Height, weight, BMI-for-age
  - BP-for-height
  - Nutri-step score
  - Recommendations & follow up plan
  - Nutri-step questionnaire is given to parents to read through and answer questions with nurse



# Physician Visit

- Patients are referred to the physician if:
  - Blood pressure is elevated ( $>90^{\text{th}}$  percentile for bp-for-height)
  - BMI-for-age is  $>99.9^{\text{th}}$  percentile  $\rightarrow$  physicians use a Healthy Futures Physician Visit custom form, so that we can track outcomes and visits.



# Physician Visit – Custom Form

## HEALTHY FUTURES PHYSICIAN FOLLOWUP

SYMPTOM	REVIEW OF SYSTEMS		POSSIBLE ETIOLOGIES
Anxiety, school avoidance, social isolation	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Depression
Severe recurrent headaches	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Pseudotumor cerebri
Shortness of breath, exercise intolerance	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Asthma, lack of physical conditioning
Snoring, apnea, daytime sleepiness	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Obstructive sleep apnea, obesity hypoventilation syndrome
Sleepiness or wakefulness	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Depression
Abdominal pain	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Gastroesophageal reflux disease, constipation, gall bladder disease, nonalcoholic fatty liver
Hip pain, knee pain, walking pain	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Slipped capital femoral epiphysis, Blount disease, musculoskeletal stress from weight (may be barrier to physical activity)
Foot pain	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Musculoskeletal stress from weight (may be barrier to physical activity)
Irregular menses (<9 per year)	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Polycystic ovary syndrome; may be normal if recent menarche
Primary amenorrhea	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Polycystic ovary syndrome, Prader-Willi syndrome
Polyuria, polydipsia	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Type 2 diabetes mellitus
Unexpected weight loss	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Type 2 diabetes mellitus
Nocturnal enuresis	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Obstructive sleep apnea
Tobacco use	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Increased cardiovascular risk; may be as form of weight control

### NOTES

### REVIEW OF FAMILY HISTORY COMPLETED

### PHYSICAL EXAMINATION

Anthropometry	Body mass index for age percentile	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Overweight or obesity
Vital Signs	Short stature	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Underlying endocrine or genetic condition
	Last Blood Pressure Elevated?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Hypertension if systolic blood pressure >95th percentile for age, gender and height on more than 3 occasions
Skin	Acanthosis nigricans	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Common in obese children, especially when skin is dark; increased risk of insulin resistance
	Hirsutism, acne	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Polycystic ovary syndrome
	Irritation, inflammation Violaceous striae	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Consequence of severe obesity Cushing syndrome
Eyes	Papilledema, cranial nerve VI paralysis	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Pseudotumor cerebri
Throat	Tonsillar hypertrophy	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Obstructive sleep apnea
Neck	Goiter	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Hyperthyroidism
Chest	Wheezing	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Asthma (may explain or contribute to exercise intolerance)
Abdomen	Tenderness	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Gastroesophageal reflux disorder, gall bladder
	Hepatomegaly	<input type="checkbox"/> YES	<input type="checkbox"/> NO	disease, nonalcoholic fatty liver disease NAFLD
Reproductive	Tanner stage (1-5):	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Premature puberty age <7 years in white girls, age <6 years in black girls, and age <9 years in boys
	Apparent micropenis Undescended testis/micropenis	<input type="checkbox"/> YES	<input type="checkbox"/> NO	May be normal penis buried in fat Prader-Willi syndrome
Extremities	Abnormal gait, limited hip range of motion	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Slipped capital femoral epiphysis
	Bowing of tibia	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Blount disease
	Small hands and feet, polydactyly	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Prader-Willi syndrome, Bardet-Beid syndrome

### NOTES:

**HEALTHY FUTURES  
PHYSICIAN FOLLOWUP**

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**NOTES:**



# Timeline

- March 2011:
  - Ensure all resources and tools are on hand
    - Toys, crayons, colouring pages
    - Packages are complete
    - Hard copies of resources (also in other languages)
    - Pediatric blood pressure cuff
  - Inservices with nursing staff:
    - Part 1: Program review, goals/objectives, algorithm, documentation
    - Part 2: Primer on Preschool Nutrition (Nutri-step)
    - One-on-one coaching and review as needed
  - Determine intake schedule, and nurses to start calling from registry and booking schedule for April 1



# Objectives and Evaluation Criteria

## Short-term outcomes:

- Baseline data for all patients seen in program (BMI-for-age, BP-for-height, nutri-step score, physical activity score)
- Follow up data from follow up visit with nurse for moderate and high risk referrals (usually done within 3 months if intake):
  - Nutri-step score
  - Physical activity score
- Use of physician 'Healthy Futures' custom form

## Medium/long-term outcomes:

- Improvement in BMI-for-age in mod/high risk population
- Decreased incidence of chronic disease



# Outcomes & Evaluation

- Custom form developed in order to make searching outcomes as easy as possible
- Spreadsheet developed as a way to sort and graph data found in searches
- Standardized data entry in EMR – ongoing reminders and ‘cleaning’ of data entered



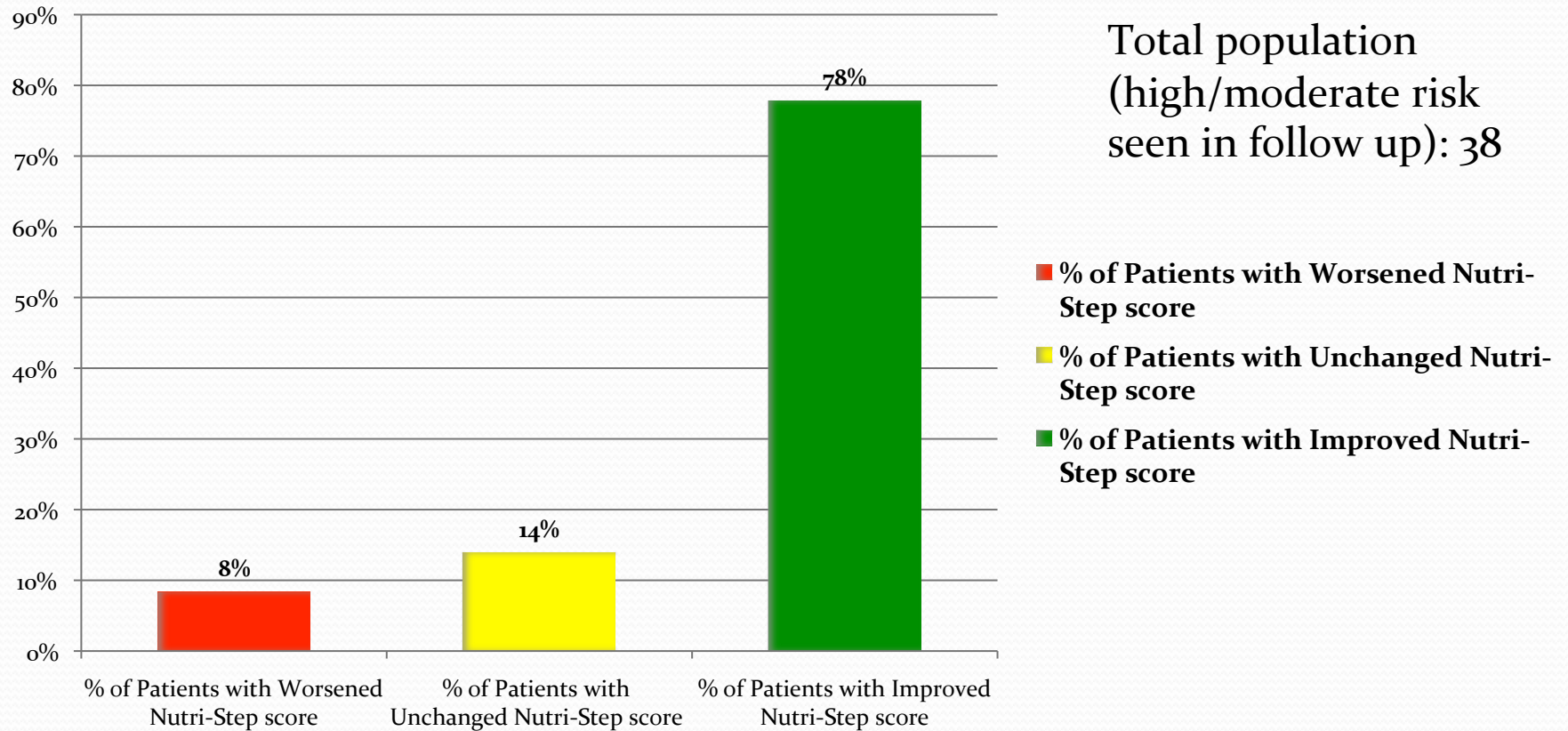
# Results from Year 1 – Baseline Information

- Total patients seen in intake: 354

Indicator	% of children screened
Nutri-step – High Risk	4.5%
Nutri-step – Moderate Risk	8%
Parents report children do not get enough p.a.	6.5%
BMI-for-age - <5 <sup>th</sup> percentile	3.5%
BMI-for-age – 84 <sup>th</sup> -95 <sup>th</sup> percentile	14.1%
BMI-for-age - >95 <sup>th</sup> percentile	10.7%
BP-for-height – 90 <sup>th</sup> -95 <sup>th</sup> percentile	7.6%
BP-for-height - >95 <sup>th</sup> percentile	4.0%

# Results – Year 1

## Nutri-Step Risk - 2011/12



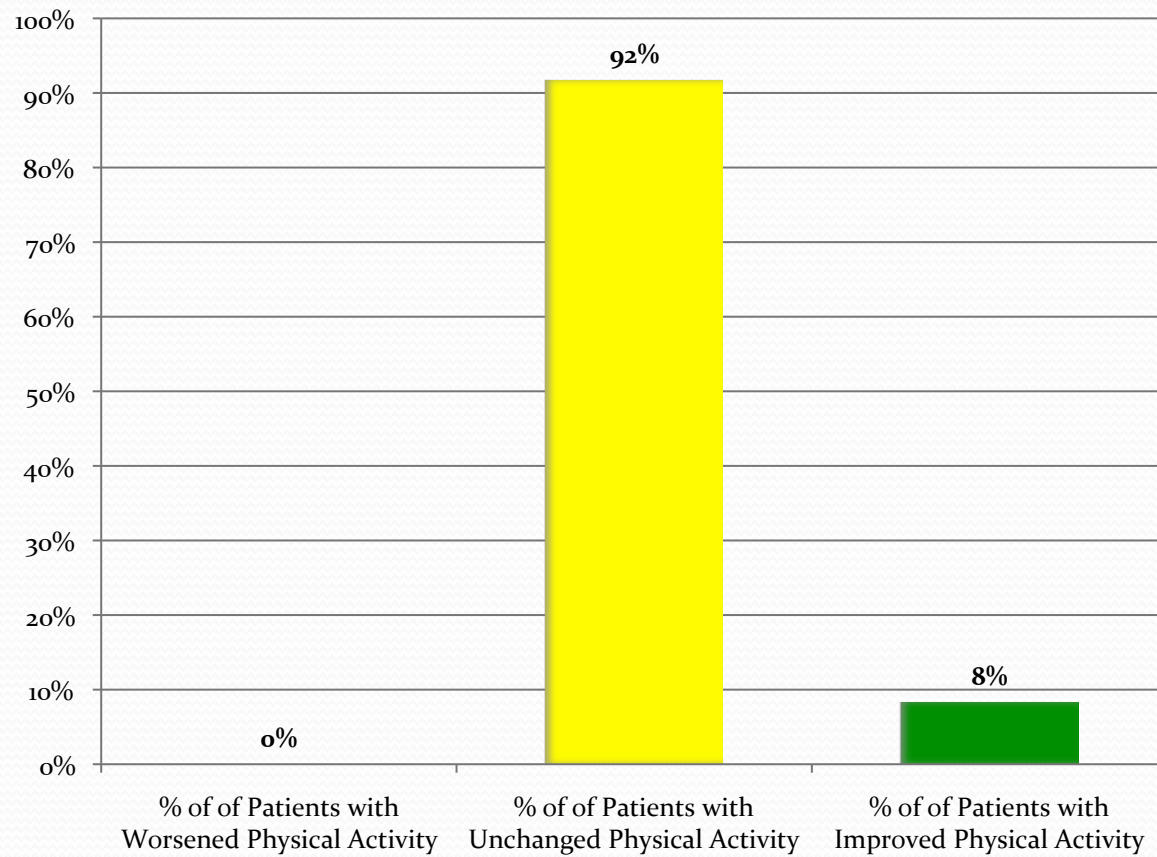


# Results – Year 1

Quarter	Average Nutri-step score - initial	Average Nutri-step score – follow up	Change
Q2	23.6	15.8	-7.8
Q3	20.6	16.8	-3.8
Q4	18.9	14.1	-4.8

# Results – Year 1

## Physical Activity - 2011/12

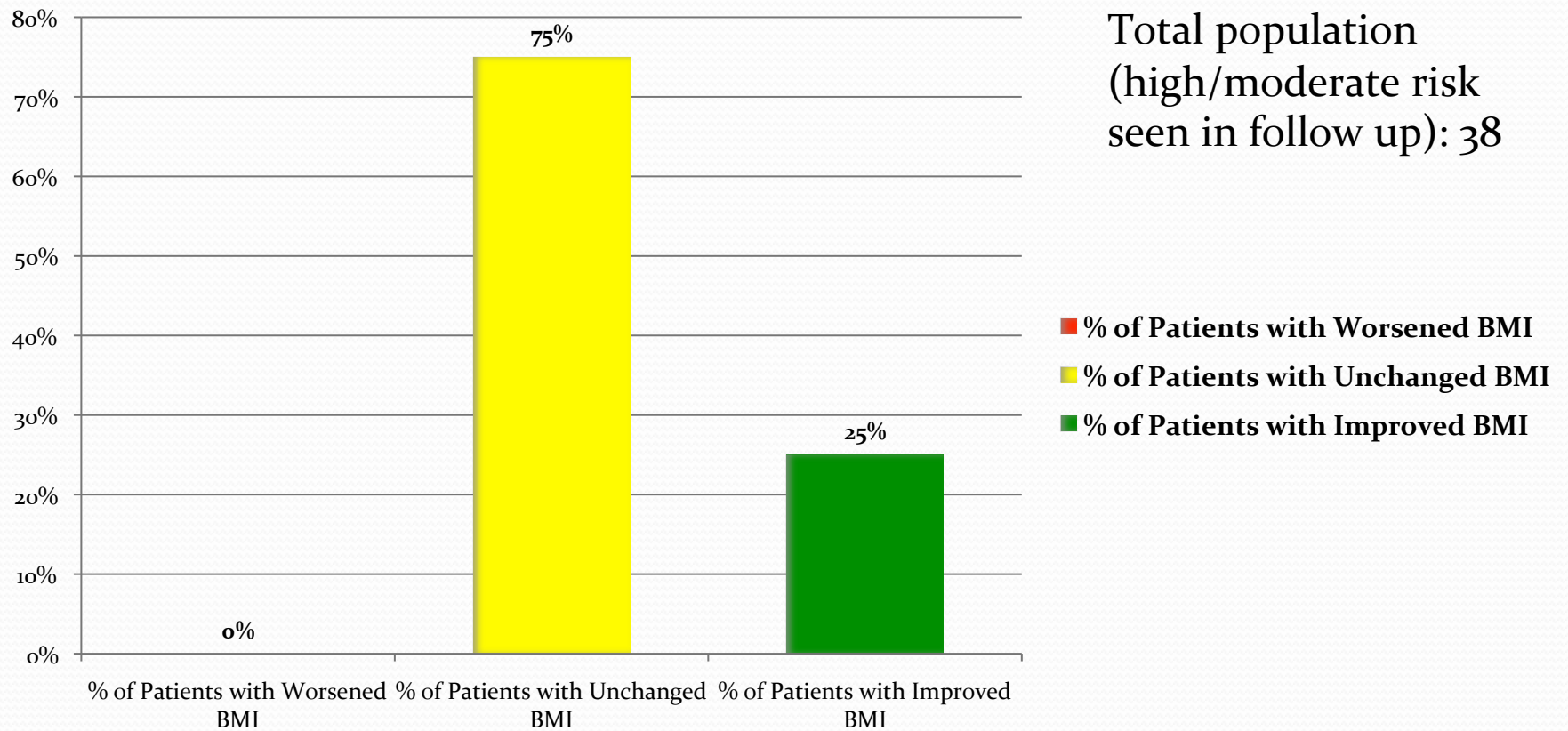


Total population  
(high/moderate risk  
seen in follow up): 38

- % of of Patients with Worsened Physical Activity
- % of of Patients with Unchanged Physical Activity
- % of of Patients with Improved Physical Activity

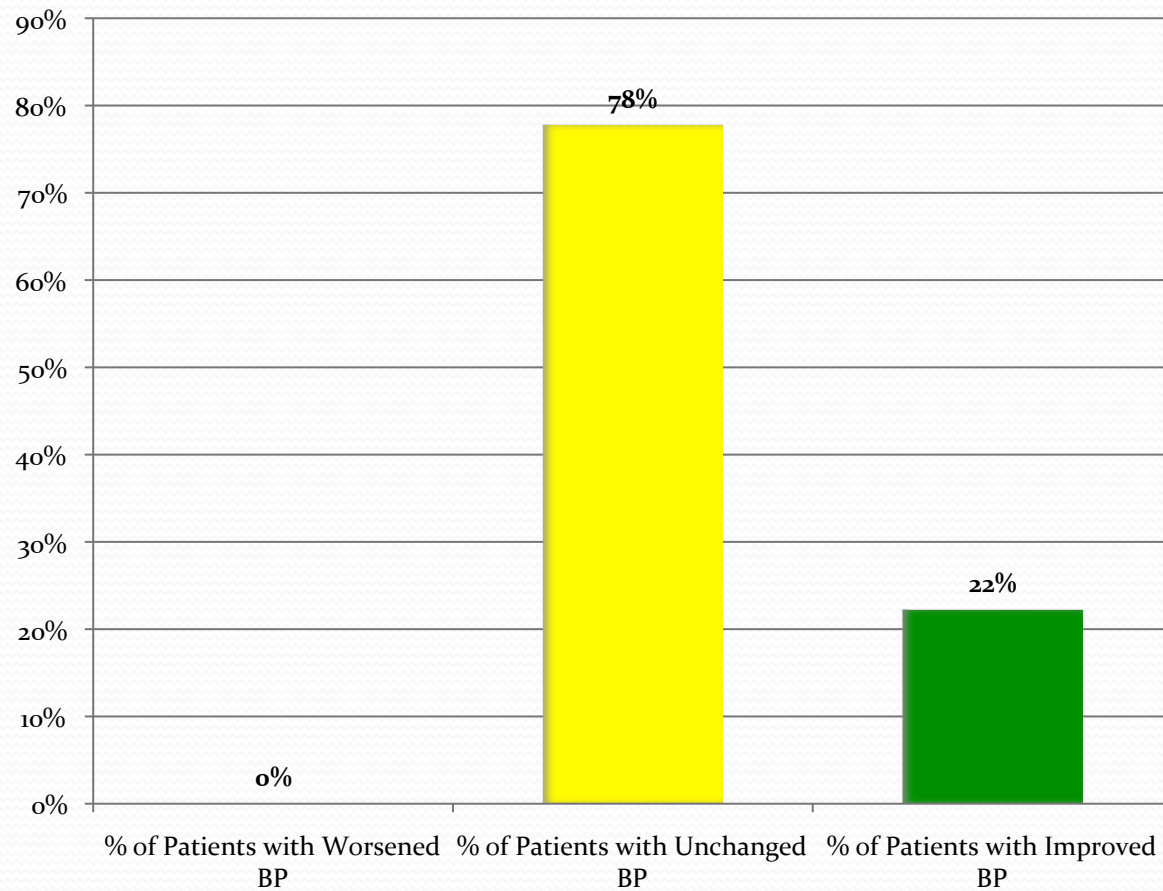
# Results – Year 1

## BMI-for-age - 2011/12



# Results – Year 1

## BP-for-Height - 2011/12



Total population  
(high/moderate risk  
seen in follow up): 38

- % of Patients with Worsened BP
- % of Patients with Unchanged BP
- % of Patients with Improved BP



# Next Steps

- Implement new tool for physical activity assessment
- Start using Parent Knowledge Questionnaire (possibly another outcome measurement)
- Incorporate new 18 month Nutri-step questionnaire at 18 month visit
- Eventually expand program to school-age and adolescent age groups
- Increased partnerships with Public Health and School Board



Questions?